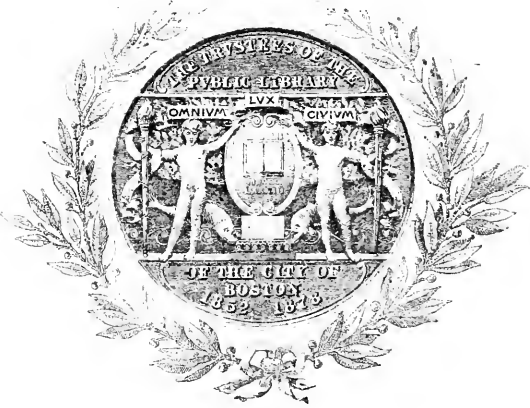
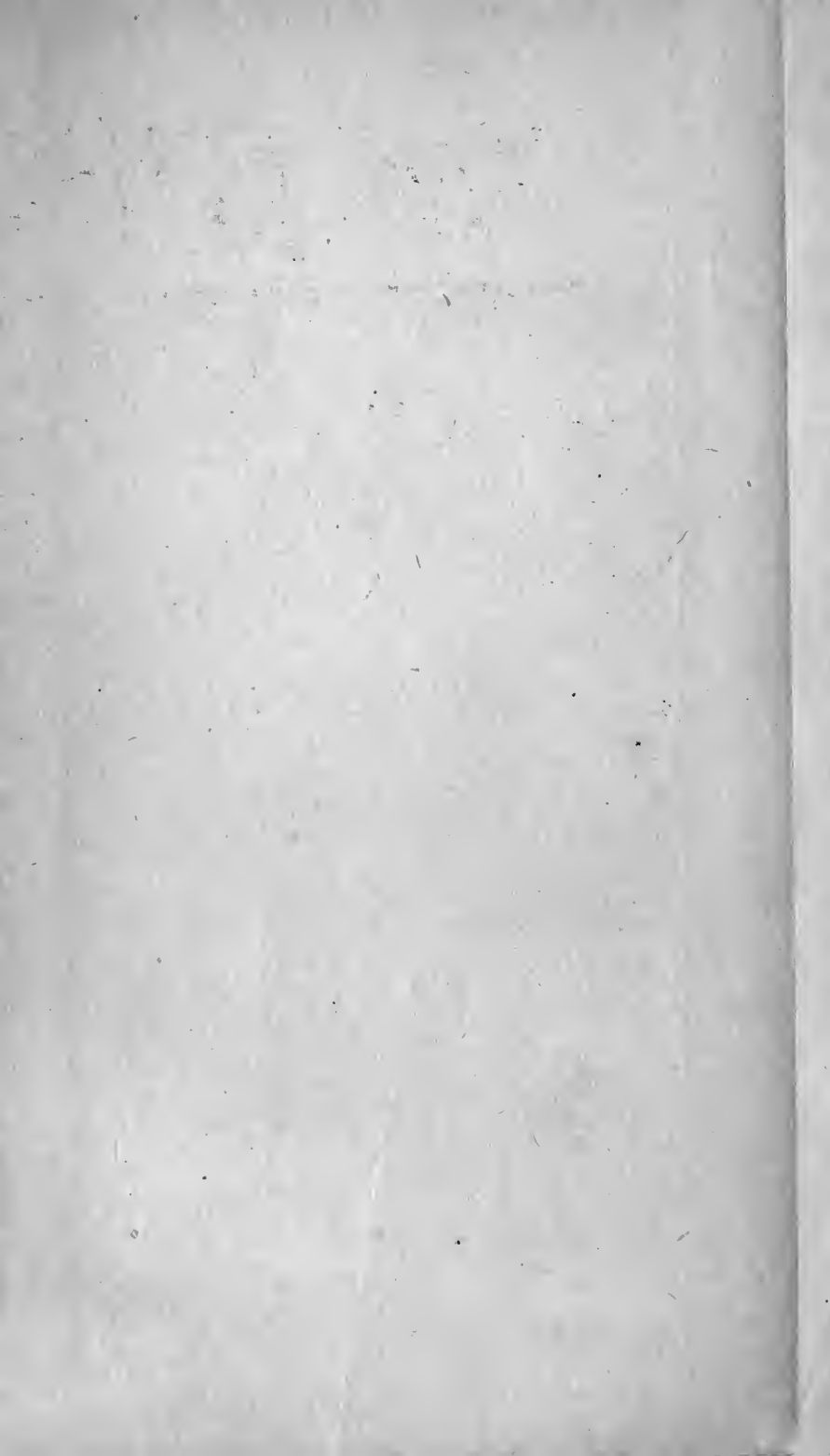



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PROCEEDINGS

BEFORE A

JOINT SPECIAL COMMITTEE

OF THE

MASSACHUSETTS LEGISLATURE,

UPON THE PETITION OF THE

CITY OF BOSTON,

FOR LEAVE TO INTRODUCE A SUPPLY OF

PURE WATER

INTO THAT CITY,

FROM LONG POND.

FEBRUARY AND MARCH, 1845.

REPORTED FOR THE CITY GOVERNMENT,
BY NATHAN HALE, JR.

BOSTON:

1845.

JOHN H. EASTBURN, CITY PRINTER

REPORT

1911

THE
STATE OF
NEW YORK
IN SENATE
JANUARY 11, 1911

REPORT

OF THE
COMMISSIONERS OF THE LAND OFFICE
IN RESPONSE TO A RESOLUTION
PASSED BY THE SENATE
MAY 14, 1909

ALBANY: J. B. LEECH, STATE PRINTING OFFICE, 1911.

CITY OF BOSTON.

In Common Council, March 20, 1845.

Ordered, That the Standing Committee on Water be authorized, so far as they deem expedient, to cause the proceedings had upon the petition of the City before a Committee of the Legislature, for the introduction of water from Long Pond into said city, to be printed and distributed for the information of the citizens.

Sent up for concurrence.

P. W. CHANDLER, *President.*

In the Board of Aldermen, March 24, 1845.

Read and concurred.

THOMAS A. DAVIS, *Mayor.*

A true copy.

Attest, S. F. McCLEARY, *City Clerk.*

INTRODUCTION.

THE Committee of the City Council who were instructed to present to the Legislature the petition of the City praying for the grant of authority to introduce the water of Long Pond for the use of the inhabitants, and to take the necessary measures for promoting the success of that object, deemed it expedient, in addition to the able services of the City Solicitor, to engage other eminent counsel to assist in promoting their call, in the hearing before the Joint Special Committee of the Legislature to whom the petition was referred. The petition was accordingly entrusted to the charge of the Hon. John Pickering, Richard Fletcher, and Charles H. Warren, Esqrs. who gave a constant attendance during twenty-six laborious sessions of the Committee and ably presented the wants and wishes of the petitioners supported by such testimony as was necessary to establish the facts on which the claim of the city properly rested and replied to the objections of the remonstrants. In the course of the hearing it became necessary to go into a thorough investigation of facts and elaborate arguments in reply to testimony produced by the remonstrants and to the grounds assumed by them in opposition to the petition. The result of the inquiry was the unanimous concurrence of the

Committee, consisting of seven members of the two branches of the Legislature in a report, in which all the grounds taken by the petitioners were sustained, and an opinion expressed that the prayer of the petitioners ought to be granted, and in reporting a bill conforming in all respects with the views of the Committee.

This bill in its passage through the Legislature was amended in some particulars, but not in a manner considered by the Committee very material. It has become a law, subject to the determination of the citizens to accept it by a vote to be given at ward meetings to be called for the purpose.

The Committee, regarding the question to be determined as one which would require the intelligent action of the legal voters of the city as well as of the Legislature, and considering that for the purpose of coming to a correct decision an accurate knowledge of facts would be necessary, employed a reporter to take notes of the proceedings before the Legislative Committee, and under the authority of a vote of the City Council they now report in print; presenting a full report of the hearing before the Committee of the Legislature, with a copy of the report of that Committee and the bill thereto appended.

The following is the petition which was referred to the Committee :

To the Honorable the Senate and House of Representatives, in General Court assembled.

The petition of the undersigned, Mayor of the City of Boston, on behalf of the City Council of said city, respectfully shows :

That the legal voters of the City of Boston duly assembled in their respective wards, have recently instructed and advised the City Council to take measures for the introduction of pure soft water into the city ;

That accordingly by a resolve of the City Council, it was decided to be expedient to procure a supply of such water, to be brought at the expense of the city from Long Pond, so called in the towns of Natick, Wayland and Framingham, or from any of the sources adjacent thereto, on the condition mentioned in said resolve, and by an order of the City Council, the Mayor was instructed to make immediate application to the Legislature, for the grant of such powers to the City of Boston as may be necessary to carry the said resolve into effect. In pursuance, therefore, of the said resolve and order, the undersigned, on behalf of the City Council of Boston, respectfully makes application directed as aforesaid, in manner following, that is to say :

First. That the City of Boston may be authorised to construct a suitable aqueduct from Long Pond, in the towns of Natick and Wayland, to pass through the towns of Wayland, Weston, Natick, Newton, Brighton, Brookline or Roxbury, as may be found expedient, for the purpose of conveying into and through the said city the waters of said Pond, and those which may flow into the same, and to take and hold the said Long Pond, and the waters flowing into and from the same, and also any other ponds and streams within the distance of four miles of said Long Pond, for the purpose of furnishing

a supply of water for the wants of the inhabitants of said city.

Secondly. That in case the said city should not think it advisable to take the water of said Long Pond, the city may be authorized to take the water of Sudbury River, at or near Saxonville, so called, within the town of Framingham, or such portion of said water as shall be sufficient to afford a full supply for the use of the said inhabitants of Boston; and in case the waters of said Long Pond should be taken for the purpose aforesaid, but the quantity thereof should be found insufficient, then that the city may take from the surplus or waste waters of Sudbury River such quantity as the city may find expedient to divert into said Long Pond and aqueduct.

Thirdly. That the city may be authorized to take and hold land along the line of said aqueduct and Reservoir, sufficient for the convenient erection, protection and use of the same, and also for such reservoirs, gates, waterways, drains and water courses, as shall from time to time be found necessary for the preservation and retention of the waters, and the security of said aqueduct, and the works that may be connected therewith.

The undersigned therefore prays that after due proceedings had, such powers may be granted to the City of Boston as shall be requisite in the premises.

On behalf of the City Council of the City of Boston,

MARTIN BRIMMER, *Mayor.*

Boston, January 1, 1845.

The following is a copy of the certificate on the back of the petition of the City of Boston for powers to introduce soft water :

SENATE, *January 2, 1845.*

Laid on the table.

SENATE, *January 7, 1845.*

Referred to Messrs. Lawrence, Newhall and Hall, with such as the House may join.

Sent down for concurrence.

CHARLES CALHOUN, *Clerk.*

HOUSE OF REPRESENTATIVES, *January 8, 1845.*

Concurred, and Messrs. Perkins of Salem, Willard of Millbury, Dwight of Boston, and Galpin of Stockbridge, are joined.

C. W. STOREY, JR., *Clerk.*

Secretary's Office, April 19, 1845.

A true copy, WM. TUFTS, *Dep'y Sec'y.*

The several remonstrances against this petition were referred to the same Committee, and notice was given to those interested to appear before it on Wednesday, the 5th day of February, 1845.

MASSACHUSETTS LEGISLATURE.

Joint Special Committee on the petition of the City of Boston for leave to introduce Pure Water into the City from Long Pond.

In this case there were a number of remonstrances, to wit :—

1st—Joseph Tilden and others of Boston, represented by William J. Hubbard, Esq.

2d—Charles W. Cartwright and others of Boston, represented by Derby & Fuller.

3d—Paul Curtis and others of Medford.

4th—Proprietors of Middlesex Canal, represented by B. R. Curtis, Esq.

5th—J. B. Faulkner and others of Billerica, represented by B. R. Curtis, Esq.

6th—R. G. Shaw and others, on behalf of East Boston, represented by D. S. Greenough, Esq.

7th—Oliver M. Whipple of Lowell.

[Several other remonstrances were handed in the course of the hearing at later sessions of the Committee.]

Mr. Pickering, the City Solicitor, appeared for the City of Boston, assisted by Charles H. Warren and Richard Fletcher, Esqrs.

FRIDAY, JAN. 31, 1845.

The Committee met and was called to order by Hon. Myron Lawrence, Chairman, and after the appearances of the petitioners and the several remonstrants had been made, the Committee adjourned until Wednesday afternoon, February 5th, at 3½ o'clock.

SECOND AND THIRD SESSIONS. *Wednesday and Friday, February 5th and 7th.*

C. H. WARREN, Esq. opened the case for the petitioners. He read the petition of the city signed by Hon. Martin Brimmer, its Mayor. He said that this petition was a very simple one, and there was nothing upon the face of it, nothing in its general aspect, nothing in its inherent character which would seem to account for the delays and disappointments to which the city had been

subjected, in its attempt to procure a supply of water ; or for the present array against this petition. It was the petition of the City Government, acting as such under the clause of the Charter which made it their duty to " provide for the health, security, cleanliness and comfort of the city." It was not the petition of speculating individuals seeking to accumulate wealth to themselves out of the wants of the many, but that of the City Government acting for and under the instruction of 110,000 people, a constituency forming one-seventh part of the whole population of Massachusetts. It simply asked for powers to do a work that should operate for the security of property, the preservation of health, the promotion of cleanliness, and the extension of comfort. It did not ask for aid from the government of the Commonwealth, nor for powers to trample on any rights of individuals or of the public, but simply for leave to do what should be necessary for the supply of a great public want, making proper compensation for every injury which might be caused in so doing.

There were but two questions arising under this petition for the consideration of the Committee ; viz :—

1st—Is there a necessity for such a supply of water as is asked for ?

2d—Is the proposed plan expedient ?

And as to the first question he might ask the Committee *who knew best* the extent of this want ? Was it not conclusively shown as by seven thousand witnesses by the vote directing the City Government to present this petition ? This was a vote given in no sudden excitement but after long and patient deliberation. It was not the result of appeals to classes or parties—it had no admixture of politics—it was the direct, solemn and deliberate assurance of those best qualified to judge of the want, that such a want existed.

To show the nature of the examination which had been made upon this subject, the extent to which the want of water was felt in the city, and the extreme deliberation with which the city had proceeded up to the time when this petition was presented, Mr. Warren then went into a detailed history of the movement from 1825 up to that time, quoting from the records of the city to show that in almost every year there had been petitions upon the subject to the City Councils, allusions to it by several Mayors in their annual communications, and in many Committees appointed to examine it ; that several surveys had been made and full reports presented and printed.

He thus brought the history of the matter down to 1844, in the spring or summer of which year he said, a movement or series of movements was commenced which showed a determination on the part of the citizens either to have a supply of water,

or to go away from the Legislature unsuccessful beggars. From the last July till September a series of public meetings was held in the city, at which the Mayor presided, to discuss the merits of the question. They were not caucusses to unite the friends or opponents of any particular measure, but meetings for deliberation and examination of the whole question. The largest liberty was allowed to all. No vote was taken at the earlier meetings, but they were adjourned day after day through the summer to give time for a full and careful examination and they were enlightened by the views and information of every one who chose to enlighten them.

Such was the state of public opinion in the city that the City Council again took the matter under consideration. This met the objection that the Council and not the citizens were those who should take measures for this purpose, if that ultra constitutional conservative ground was to be taken. For the City Council themselves asked the opinion of the citizens upon the question. They saw the importance of it, and considered it one of those cases where it was their duty to shift the responsibility to a certain extent and to ask for the decision of their constituents. Accordingly in December last they submitted four propositions to the people for their decision.

The first of these asked the question of the voter whether he wished to have a supply of water brought in at the expense of the city from Long Pond and the sources adjacent to it. The warrants had been issued regularly, there was a deliberate vote uninfluenced by tumult or by party divisions which resulted in 6269 yeas and 2204 nays. The next question was whether the voter would request the City Government to take the measures necessary to carry out the plan indicated by the first; it was a test of the confidence in the opinions held by those who had voted in the affirmative on that. The replies were:—yeas 6252 nays 2207, and the vote on these two questions showed a majority of *three to one* in favor of bringing in the water from Long Pond, and even that of course did not fully express the majority desirous of introducing water from some source.

The next question was whether the voter was in favor of introducing water from any source the Council might select. To vote in the affirmative would lead to farther delay and the vote was yeas 1206 nays 7081. It was apparent that all the "yeas" were in favor of bringing water from some source and formed a part of the negative vote on the two first propositions, so that the vote in favor of the introduction of water from *some source* would be brought up to over 7000. The fourth question whether the voter would advise the Council to apply for a

charter under the 3d proposition was answered by yeas 1194, nays 7144.

As the result of these proceedings the City Council of the previous year presented the petition now before the Committee, and a new City Council having gone into power on the first of January, by their authority he (Mr. Warren) and his associates appeared in support of that petition.

This general statement which would be substantiated by the City Records, was all that they proposed to adduce in support of the first point, that there was a necessity for some new supply of water for the city. No attempt would be made to appeal to the feelings of the Committee. The citizens did not pretend to be in a dying state, demanding immediate action to preserve their lives. He had intimated that the water was needed on the score of health ;—it was so more or less, the Committee could judge how far. As to property ; it would save 100,000 dollars in insurance, if there was the same reduction in rates as there had been in New York. The saving of expenses now necessary for the increase of the fire department would be very large ; according to the estimate of Mayor Eliot in 1839, about \$20,000 annually. The city itself held a large amount of real estate, which would be increased in value by the greater security—perhaps 10 per cent. or \$1,000,000.

These were strong grounds for the support of the project, but they were not the strongest. The daily comfort of almost all the inhabitants of the city demanded this interference in their favor—and of this the most stringent evidence had been offered in their calls repeated year after year, and the full votes which had just been stated. He was not advised that this point would be contested. He could not anticipate what objections were to be made, but he did not suppose that the Legislature would be asked to inquire into the necessity of something being done by somebody to supply the existing want. If this were so, the city asked to be allowed to supply it according to the plan of their Commissioners. They came as beggars for a cup of cold water, and hoped that this slight boon—which they felt to be necessary to their health, comfort and prosperity would not be refused. He should call no witnesses to this point of necessity. If it was to be examined in all its details the length of the legislative life would not suffice for the examination. Every inhabitant of the city might be put upon the stand.

Mr. Warren said that he agreed that if this point was not made out, that there was no case for the petitioners—but he should take it for the present as settled that this was a great public necessity, and that it was a great public object, for the benefit of *one-seventh* of the people of Massachusetts, that something

should be done, in some way, and by somebody to relieve this necessity. He said that to grant the prayer of this petition was the thing to be done, that it was to be done in the way recommended by the Commissioners, and by this Legislature.

The only remaining question then was as to the expediency of this plan. But what was this question really? The expediency of *what* was to be examined? Not the expediency of involving the Commonwealth in an enterprize without counting the cost; not of supplying a want of the people at the expense of the State; but simply of conferring certain authority on one of the municipal corporations of the Commonwealth, for a purpose which was felt to be necessary. He was not aware that he should be met by the assertion that this was a singular power, or that it would be wresting the authority of the State to an improper or doubtful purpose; but to show that the powers asked had been granted again and again to the people of the Commonwealth, he referred to the act of incorporation granted to Luther Eames and others, for the Jamaica Pond Aqueduct in 1795, a period of fifty years since, (Special Laws, 2 vol. p. 19.) This power had not been confined to the City of Boston. It was extended in 1796, to the town of Greenfield, (Special Laws, 2 vol. p. 93.) There was another case in 1837, (Statutes 1837, p. 160) giving power to the Cambridgeport Aqueduct to lay pipes, take and hold land, &c., just as the city now wished to do, and the damages were to be assessed according to the 116th chapter of the Revised Statutes.

Now before considering this subject further, and without looking into the nature of the objections to this project, or asking who were its opponents, he would ask the Committee if this was not the situation of the petitioners. The water was wanted—the city was the party to bring in the supply—at its own expense—without asking the Commonwealth for one farthing. It had settled down on a project, and declared in favor of it deliberately and advisedly, by a vote of three fourths of those who chose to vote. Who then should gainsay it in this matter? Would the Committee or the Legislature object on the ground that it was a hazardous speculation that the city ought not to undertake? Would they take the city under guardianship and undertake to direct the form of its enterprizes? If it asked for railroads, would they bid it invest its money in ships—or if it wished to manufacture cotton would the Legislature overlook its judgment and compel it to manufacture pins! The citizens were not the wards in chancery of the Legislature, with their judgments under its care and protection. They were able to judge for themselves; and if the Legislature undertook to look into the details of this matter at all, and to base its decision upon the

idea of controlling the judgment of the citizens as to the prudence and expediency of the plan, it would be establishing a principle which could not be carried out without the greatest inconvenience. If the object was a worthy, necessary and public object,—if it was not indeed a praiseworthy and necessary one, let us attain it in our own way, so far as our means went and we trampled upon no man's rights. A municipal corporation was even less to be dictated to in such a matter than individuals; what it had deliberately decided upon was to be held *prima facie* to be a wise and proper course. If the Committee *knew* the waters of Long Pond to be poisonous, and not to be drunk without death or danger, of course they would not give the power asked; but he might assume that neither the Committee or Legislature knew whether this was the best plan or not, and it was safe to leave the city to judge.

Then as to the expense. The city wanted the water and the city would be obliged to pay for it. Suppose it would cost ten millions more than was proposed, the Legislature need not be concerned, for the money would not go out of the Commonwealth. But this case had no such features of recklessness. The city was now taxed for 130 or 140 millions of property. Of this the citizens were willing to expend 2 or 2½ millions for this purpose. They said that they were satisfied that the work could be done for that amount; *they* said so who would alone suffer by the result of an erroneous estimate. To refuse the powers asked from a doubt that the city ought to bear this expense, would be reducing Boston to a state of pupilage; stultifying its citizens by saying that its opinions thus deliberately formed were worth nothing.

It was next to be considered that this plan must be carried out or nothing could be done. In this might be seen one reason for so strong a vote in its favor. It was a great subject, on which much required to be done before a result could be obtained. The people were united upon the great subject, but there would always be on such occasions various plans and projectors. And so in this case, whenever one source had been proposed, the friends of all others rose up against it; and in the consideration of Spot Pond and Long Pond, and Charles River, Dug Pond, Punkapog Pond, and Neponset River, and discussions as to whether each contain six animalculæ or five and a half, and arguments for and against every stream or pond, whether stagnant or otherwise, within twenty miles of the city, might be found a reason for the series of vexatious disappointments with which the history of that matter was full. The people were now tired of this want of concentration of effort, and with six surveys before them, made by distinguished men, with the results

of information gathered together by the authority of successive City Governments, with the benefit of ample discussion and deliberation, they now said that they had settled down upon this point and would have the water from this source. There could be no doubt that this was the deliberate opinion of the citizens of Boston. They were to pay the expense of the work, and they had not decided upon it without every opportunity for forming a correct judgment. If they were wrong they must be responsible for their own negligence.

Who were the remonstrants against this project? First, there were some who said that their pecuniary interests would be injuriously affected by the grant of such powers as the Legislature was asked to confer upon the city. Such suggestions ought to be respectfully heard. The city wished to lay no strong hand upon the property or rights of others, and did not ask the Legislature for assistance in any such purpose. But the extent of such injury could not be examined there. The city desired to make the most ample remuneration for all property they might take, all damage they might cause. They wished no help from the Legislature to drive sharp bargains; but this was no place to decide what the damages in each case would be. The Legislature would name the tribunals which would decide these points, and the city would abide their decisions.

Who else were the remonstrants. There were some 5 or 600 citizens of Boston.* The signatures had been obtained to printed forms, and with the usual industry exerted for such purposes, and with the full assistance of that class of busy men who like to gain importance by carrying about petitions. He had said that these remonstrants, who felt that their property and rights were to be attacked, were entitled to a respectful hearing. These stood on a very different footing. He meant no disrespect to the individuals, or to their rights, or their mode of exercising them;—but he did say that when a town had acted on a mooted question as Boston had done upon this, when it had come to a decision in an open and legal manner, upon a matter in which every citizen was concerned,—that if gentlemen who had found that they had failed to convince their fellow citizens when they had the matter under consideration, then came up to the Legislature—by hundreds and not by thousands—he would not say that they ought not to be heard, but if a deaf ear were turned to them no one could not complain. They had had their

*This was about the number at the time this opening was made. More signatures were obtained during the time occupied by the hearing, and the reporter believes the number of remonstrants from the city by the time the case was closed before the Committee to have been nearly double the number here named.

day of opposition and had failed. This was not an extreme case of mob violence, or thoughtless radicalism to be guarded against, for it was one of the pleasant circumstances with regard to this matter, that it was the result of the movement of no particular class. There no occasion to raise a clamor of poor against rich or rich against poor. This was not the project of merchants alone, or mechanics alone, or of any class alone, but all had united on what they considered the common good of all.

He would willingly admit that if this measure had prevailed simply by a majority of one or two or ten the minority might well appeal and ought be heard. But these remonstrants were not replying to a still small voice, they were resisting an overwhelming flood. Nothing had been done in this matter in disregard to the rights of any part of the community, and these remonstrants could not be heard with any degree of favor here unless this was to be a place of appeal for minorities against majorities and where any party dissatisfied with the result of any question of City Government might come to have that question tried over. The true course would be for the Legislature to tell the people of the city to settle these questions among themselves before coming there. The Legislature could not adjudicate upon these family quarrels.

Who were the next class of remonstrants? They were gentlemen owning land in East Boston who objected to having that part of the city bear any part of the expense of the proposed work. If they were serious in this objection it showed a poor conception of the duties of a good citizen. But if the objection were tenable it would lie against every city tax. As well might a man who should choose to live in the cupola of that building object to the project because the water would not reach his abode. It would be a monstrous doctrine to maintain that every part of land in the city must be individually benefited by every public expense or the owner was not liable for its tax. As well might persons without children object to paying their share of the school tax. The remonstrants seemed to be forgetful that what was for the benefit of the corporation is for the benefit of all. The city pays for the lights, pavements and engines at East Boston. He might as well say that as he was not benefited by the engine at East Boston, he would save his three cents paid towards its support.

Who were the next class of remonstrants? They were gentlemen afraid of being overtaxed, and on this point every man had a right to be heard, and the Legislature was bound to be careful of the interests of all. But property was well represented by this petition. Five ninths of the voters of Boston pay a property tax. This then was no foray of the poor against

the rich. This class of remonstrances was not to be heard. The people of Boston came in a body, and threw themselves at the feet of the Legislature, asking a simple boon. Never was there a more considerate regard for individual rights. He believed indeed that a vast proportion of the wealth of the city was in favor of the project. The condition was self-imposed, that those who used the water should pay for it. There was no proposition to tax farther than that. The petitioners asked that they might have the water upon paying for it. They were willing that the condition that those who used it should pay, should be guarded as strongly as the Legislature saw fit. They had no objection that the water rents should be pledged to the holders of scrip, so that no power on earth could deprive creditors of that lien, or release the users of the water from that debt. He would not contend that at first the rents would pay the whole interest, though there was no doubt that they would eventually. On this ground he might refer them to the opinions of Mayor Eliot on the subject and the example of Philadelphia. If the income in New York had not been sufficient, it arose from peculiarities in the circumstances attending her works to which he need not then advert.

It was said that this was a time of great excitement, and that great efforts had been made. Excitement and efforts about what? Why, about bringing in water at the expense of those who were to use it, which had been determined upon by a vote of 7000 to 1000. How was this excitement got up and by whom? If the citizens did not want the water it was singular that they should ask for it. Great efforts had been made, because it was a great object. The remonstrants also made great effort—if they had *not* it would show they were indifferent—and the result was three to one against them. The printed form of remonstrance stated that the plan was proposed “without regard to the magnitude of the expense.” How did they know this? What right had they to say it? There was a degree of assumption in taking this ground rather remarkable, and one petition said that it was “hastily” proposed. He might recur to the whole history of the movement to show that there had been no haste, and now that the Council were acting under the instruction and express direction of the citizens, voting deliberately upon the proposal, and sending the Mayor and others of their body to urge its acceptance here, and employing counsel to support it, and this was called hasty action. What time would satisfy these remonstrants? It appeared that the city had been striving for this object since 1795, and was no nearer to it now than then, and yet it was accused of acting in a hurry.

A remaining class of remonstrants consisted of persons already

well supplied with water. We were told that seven out of the 3000 wells of the city furnished water that would wash. The owners of these probably voted against the project. Others did not care for a little chalk and a few animalcules. Others left the city and did not have to drink it at the season it was most injurious. Others did not have their washing done at home. But to all this class of remonstrants we might say, that if any man objected because he was not in want of the water himself, he was entirely forgetful of the duties of a good neighbor, and shewed a selfishness which was unworthy of the privileges of the community in which he lived. And he might tell all such, that if they now felt no compunction for such selfishness, they might soon feel it, when as repeatedly happened, from the digging of new wells, their own sources of supply became worthless.

Many of the signatures to these remonstrances were those of that class of people who sign anything. They discharged important duties, and were often called to exercise them. Those who knew anything of such papers would make an allowance of a large per centage for these persons.

Another ground of objection was from those who, though they wanted water, and sincerely wished that it might be introduced, thought that it had better be done by a private corporation than by the city. This question he did not propose to discuss. It was a proper ground to be taken before the people of the city, and it had been so taken, and failed. They could not now ask the Legislature to advise, but must ask it to say to the citizens; You shall not do this thing, but others shall do it for you. [Mr. Warren then cited a passage from Mayor Eliot's message in 1839 (City Document for 1839, No. 10) urging that it was better that water should be introduced by the city than by a private corporation.]

This course might, or might not be best, but the citizens were the best judges.

These were the principal objections to the prayer of the petition. They did not shake the case of the petitioners. There was a want that *must be supplied*, unless the Legislature would abandon its care for the interests of its constituents. Who then should supply this want? The city did not come here for purposes of speculation. It asked no money of them. It had considered the matter and wished to do it in a certain way. This might cost the sum estimated, or more, but the Legislature need not investigate that, because the city would have to pay. This was their case. They did not ask the Legislature to examine the estimates then, but if the remonstrants chose to say they were enormous and preposterous, and that the citizens ought to be sent away as fools incapable of understanding their interests

or disregarding of maintaining them, and made that out, they must abide the consequences. Whatever proof they might put in, on these or other points, he believed the city was prepared to meet.

Mr. Warren then put in the certificate of the City Clerk to a copy of the votes on the four propositions, and the city records which had been cited.

After some conversation about the order which should be adopted, with regard to arguments and evidence, the Committee adjourned to Monday afternoon, February 10th.

FOURTH DAY. *Monday, February 10th, 1845.*

After some farther discussion with regard to the order of business, E. H. Derby, Esq. proceeded to open the case on the part of the remonstrants. He said that he did not intend to fritter away time by the introduction of evidence in detail, but was prepared to meet the case upon its merits. His evidence would be taken chiefly from the mouth of the city itself, and he would hand to the Committee a number of documents, to which he should refer them, and which he wished to consider in the case. These were:--

All the City Reports on the subject of Water.

Two Western Rail Road Reports, January 1841 and 1843.

List of persons taxed in Boston, in 1839.

Mr. Coffin's statement of repairs and income of the Croton Aqueduct.

Mr. Wilkins's Pamphlet.

City Document, No. 24.

Water Reports of 1837, '38, and '39.

Illustrations of the Croton Water Works.

Report of Loammi Baldwin, 1834.

Report of the Commissioners, 1837.

Description of the Croton Aqueduct, by Jarvis.

All the Reports on the subject of the Croton Aqueduct, by the Engineers of that work.

Letter from J. P. Hasty, Engineer of the Croton Aqueduct.

Statement of evidence before the Legislative Committee, printed in 1839.

Letter from Hinkley and Drury on the cost of steam engines.

Letter from Cyrus Alger to the City Government.

Report of Robert H. Eddy, jr.

Copy of a vote to print the Reports of the two Water Commissioners.

S. M. Felton's Report.

Mr. Wilkins's addition to his pamphlet.

The New York Herald of Oct. 9 and Dec. 24, 1844.

Mr. Derby read the remonstrance of Jonathan French and 217 others, and then proceeded to say that he was not the advo-

cate of any particular pond or other source as opposed to Long Pond, but he represented the remonstrants from the city,—who now numbered 600, and he hoped before the end of the hearing would be not far from 1000,—and the town of Framingham. The city remonstrances came from Merchants' Hall and the Insurance offices, protesting against what they considered an invasion of private rights, and he proposed to show by the schedule of property taxed in the city in 1843, that these remonstrances represented a large proportion of the wealth of the city. The whole number of voters in the city at the time of the last election was over 19,000. The largest number of votes ever thrown was about 13 or 1400. Now by the schedule above referred to it would appear that,—176 individuals paid \$172,000 in taxes upon 30 millions of real estate; 2200 individuals own over \$90,000,000 and 4073 individuals own \$107,000,000, while the residue of the taxable property was only \$10,000,000, the whole being \$117,000,000. If then you should deduct from the 19,000 voters whose name are on the ward lists, the 4073 who pay the taxes on the \$107,000,000 of property, there would still remain nearly 15,000 voters who pay little more than the poll tax. [Mr. Derby stated in reply to a question from one of the Committee, that he had no means of showing which way persons voted upon the water question, or whether those who voted were the poll tax voters to which he referred.]

He represented a large proportion of the wealth and property of the city, men who anticipated a failure if this great work was commenced, and who if it resulted in the manner a similar work had in New York, would be obliged to pay the interest on the outlay, which they believed would add 50 per cent. to their taxes. They believed that the action taken in this matter had been precipitate and founded upon erroneous statements; and in order to show that the citizens had acted unadvisedly, he proposed to prove that notwithstanding the Common Council had voted to distribute together the Reports of the Water Commissioners of 1838 and 1844, one of which was in favor of Spot Pond as a source, and the other of Long Pond, the latter only, which was in favor of Long Pond was circulated before the election, and the former was kept back until after the vote was taken. He believed that this fact had great bearing upon the decision, and that in consequence of it the citizens had voted in the dark upon the propositions.

This was not a matter in which the popular will was decisive upon the subject of a popular want. The city was not associated together, or clothed with municipal authority, for such a purpose as the building of aqueducts. There were other necessities of life which it might as well undertake to supply, as water. There

were air, light, heat, clothing. Next year the city might come in there and ask for powers, under a vote of the citizens, to carry out some new project for supplying heat and gas from the interior of the earth ; or to borrow money at four per cent. to supply clothing for the poor, that the manufacturers need not charge them thirty per cent.

Where were the minority, in such a case, to find a refuge, if not with the Legislature ? That was the high court of appeals which was to stand between the minority and the majority for the protection of the rights of the minority. The counsel had spoken of this merely as an investment, and had said that the money was to be spent by the City of Boston, and spent at home. But were not the Legislature the guardians of capital ? Was it not to consider carefully before enlarging the powers of an existing corporation ? Was not the State interested ? Boston was a part of the State, and the State was interested in every village and every villager. The guardianship of capital which the Legislature holds was shown by its establishment of Savings Banks ; it was a fundamental principle of civilized policy, and the State would not look on and see the City of Boston waste its capital.

This was spoken of as a small requisition ; it was said that "a cup of cold water" only was asked for. But it was for all of Long Pond, Sudbury River, and the Middlesex Canal. In one sweeping request, it asked for lake, river and stream. The city came there without defining the limit or the expenses of its proposed operations. It only named its termini ; Boston on the one hand, and Long Pond and Sudbury River on the other. There was no plan of the route,—no statement of what roads were to be crossed ; the Committee could not know even that churchyards were not to be disturbed. It was a bold and startling proposal, at variance from all other calls of the kind for legislative aid. If a road or street was to be laid out, it must have submitted clear and accurate plans. But here was not even a calculation of income to show whether the work would pay. He had called for the production of a detailed plan of the route, and nothing was produced but the sketch attached to the Commissioners' Report, published by the city. Was it not the duty of the city to have submitted accurate surveys and plans, with accurate calculations of cost and income ? Here was nothing but a request for a roving license to pass through a certain part of the State with an aqueduct, and nothing definite by which the good or evil of the plan could be judged.

The only proof of the public want that had been offered, was the popular vote. Nothing had been said of the three thousand tenants supplied by the Jamaica Pond aqueduct, and from the opening of this case no one would have known that there was

now any aqueduct in Boston, and yet the Croton aqueduct only supplied nine thousand tenants out of three times as many inhabitants as Boston had.

The Legislature was now called upon to exercise the power of *eminent domain*. It was necessary that a great public exigency should be shown, and that then the Committee should strike the balance between that exigency and the evils which occur in satisfying it. He (Mr. Derby) did not understand that the exigency had been at all established, or that any sufficient evidence had been adduced to make out this part of the case ; but he should nevertheless analyse the matter somewhat farther, that the position of the question might be fully understood.

It had been said that the income would be pledged to meet the expense of the work. But those whom he represented did not believe that there would be any income, and therefore such a pledge would be no protection. Some caution was certainly necessary to protect the pecuniary interest of those concerned. To show that they were not sufficiently cared for by the proposed project, since the counsel for the petitioners had gone into no particulars, he should put into the case the report of the City Water Commissioners in 1844, in which the Long Pond project was developed. Upon this project he wished to make some general remarks, which he should attempt to support by proof.

He should maintain that the city would not require for a whole generation to come, so large a supply of water as that proposed to be introduced from Long Pond. That water could be introduced from nearer and better sources, and of superior quality, at little more than one-tenth of the expense that would attend the proposed project. That this might be done by the enterprise of a private corporation, which would take the risk, and yet give the city a right to assume the benefit of the work upon fair terms ; and in the charter of this corporation, conditions might be introduced for free hydrants, and the use of the water in case of fire. That the city was constantly changing its position, the inhabitants moving out into the suburbs, and street after street changing from dwelling houses to places of business. That modern arts and improvements dictated the use of pipes of iron instead of a conduit of brick or masonry. That the price of iron was decreasing, while that of earth work and mason work was advancing. That the expense of the annual repairs of an aqueduct of iron pipes would be far below that of one of masonry.

He would not trouble the Committee with the whole description of the proposed aqueduct, as it was to be found in the Commissioners' Report of 1844. It was to consist of an aqueduct of masonry, to bring the water from Long Pond to Corey's Hill. It was to be built of brick, with two breaks or gaps of iron pipe

to cross vallies. This was the plan which was submitted to the citizens, and under which the city was acting. It was in the report of Nathan Hale, Patrick T. Jackson, and James F. Baldwin, and the plan accompanying that report was the only one which was presented to show the course of the proposed aqueduct. It was so small that it was nearly impossible to criticise it.

The action upon this matter had been most precipitate. The city had not the benefit of full experience upon this subject. It was well known that Railroads had generally cost triple their estimate. There had already been one aqueduct built in New York, and the city might have sent to New York for the Chief Engineer of that work, and got his estimate of the cost of this, with the benefit of his full experience. But they had neglected to do this. It was customary in preparing estimates for any public work to employ a person conversant with the business. But what had the city done? They had taken two Railroad Directors and a Railroad Engineer for Commissioners, and had relied upon their estimates; and there were such serious differences and errors to be found in comparing these with the cost of the work on the Croton aqueduct, that he felt bound to call the attention of the Committee to them.

There never was such a masonry aqueduct as this proposed constructed before, and the Commissioners' Report of 1837, (p. 29,) signed by two of the same Commissioners who now recommended this plan, acknowledged that they "cannot speak of it" (the brick structure,) "with the entire confidence we can speak of an iron pipe, because we are not aware that any work, precisely similar to either of them, has ever been constructed and proved experimentally to answer the end designed," which was enough to show that they were not properly informed, and that the action of the city was precipitate. Such a shell of brick work as this proposed, for such a purpose, resting on an embankment of from thirty to thirty-six feet high, was without precedent in ancient or modern times.

Mr. Derby then proceeded to describe, in some detail, the structure of the Croton aqueduct, and then to argue that the structure proposed by the Commissioners for the Long Pond aqueduct was not strong enough, and that their estimates were insufficient. He then went on to illustrate the precipitate action of the City of Boston, in this case, by comparing it with that of New York, with regard to the Croton aqueduct; showing that the latter was made under the superintendence of the State; that the original estimates of its cost proved insufficient; that the income had not come up to that which was expected; and that the annual expense for its repairs had exceeded the estimates. He then urged that if the income here were no greater in proportion to the num-

ber of inhabitants, than it was in New York, and the expenses were in the same ratio, the annual receipts would be only \$34,000, the expenses \$16,500, and that consequently the net income would be only \$16,500, or the interest on about \$275,000.

The number of persons who would take the water was much exaggerated. That of the Jamaica Pond aqueduct was not taken by one in three of the persons in Washington street, whose houses its pipes passed ; and he believed that a large portion of the inhabitants would not take the trouble of introducing this water into their houses, even if it were brought into the city free. The impurities in the water now used in the city were only a little lime and a little salt. Were these very injurious ? Could the human body live without salt ? and lime might be really beneficial. The chemists told us that the bones of the body were made up of phosphate of lime, and if we got a little with our water, it could not be very deleterious. He understood that no case of the disease of stone or gravel, which was that supposed to arise from these mineral substances in water, had originated here for a series of years.

Mr. Derby proceeded to examine the damages which would be caused by the proposed work, arguing that the estimates therefore were insufficient. The freight to and from the village of Saxonville was 8 millions of tons a year, all of which was founded on the water power derived from Long Pond and Sudbury River. Two factories had been built within the past year and were now in a highly flourishing condition. Forty buildings including a church and these factories had been erected within the same time. Would the \$100,000 set down for land damages more than pay for this village ? It might pay Mr. Knight and the other holders of the water powers, but who was to pay the owners of the houses. Such consequential damage would not be compensated for by law, but ought not some compensation be made ? Only 10 years ago the Legislature inflicted a blow upon the town of Framingham by chartering the Worcester Railroad. It was now proposed to strike at its prosperity again and ought not the city to pay for the injury ? The city would not only take away the water power but destroy the property that depended upon it, and if this could not be restored by a jury it ought to be taken into consideration by the Legislature. Then there were the water powers at Billerica, Lowell, and Andover, and the interests of the Middlesex Canal to be provided for, and with all these he could not estimate the sum that would be required for water rights and land damages at less than \$400,000.

[At this point of Mr. Derby's remarks the Committee adjourned to meet on Wednesday afternoon.]

FIFTH DAY. *Wednesday, February 12, 1845.*

At the opening of the meeting of the Committee Mr. Derby gave way to MR. TRAIN, of Framingham, who commenced an argument to show that the town of Framingham would be injured by the proposed aqueduct. But it having been proposed by the Counsel for the city that they should probably agree to any statement of facts put in by that gentleman, the Committee directed Mr. Train to reduce to writing that which he intended to prove, and it was agreed that this statement, after being submitted to the Counsel for the city, should be put into the case.

MR. DERBY then resumed his opening in behalf of the remonstrants from the City of Boston, by recapitulating his argument of Monday.

Mr. Derby then proceeded to examine in detail the structure of the proposed aqueduct and the estimates of its cost, arguing that the structure was insufficient for the purpose and the estimates far too low. He urged that the slope of the aqueduct was not sufficient, and that the structure was too weak to support the weight required, particularly on embankments liable to sink or expand. As to the expense:—the N. Y. aqueduct had cost over \$100,000 per mile for construction while this was estimated at only \$27,500. Notwithstanding the flow of water would be less rapid in this than in the Croton, owing to the slope being less, the size of this was only about one-quarter of that, the area of the cross sections of the Croton being $42\frac{1}{2}$ square feet, while that of the cross sections of the Boston plan was less than 12 square feet. The estimate for ventilators, culverts and waste-weirs was insufficient, and that for the cost of bricks ought to be trebled. That for laying, sand, and puddling made no allowance for the increased expense which would arise from the sinking of embankments and was on too low a basis. There was no allowance for the increased expense of excavation and embankment if the surface of the pond should prove to be lower than in 1837, and yet the aqueduct must be made to meet the pond or the pond would have to be dammed up so as to meet the aqueduct, not much improving the water by flowing over peat-meadows. The estimate for excavation and embankment was too low and yet there had been no allowance made for the extra cost of back-filling and road crossing, or for the incidental expenses of filling, coffer dams, and pumping out of water which would be required in the course of the work.

After examining in detail each of these points he gave the following as his estimate of the cost of the work in place of that given by the Commissioners :—

Water rights and land damages,	\$400,000
Brick aqueduct 16 miles, (at \$100,000 per mile, which was cheaper than the Croton was built,)	1,600,000

Excavation and embankment,	400,000
Back filling,	100,000
Staging, centering, pumping, founda- tions, &c.,	16,000
Pipes and reservoirs west of Corey's Hill, as given by Commissioners,	81,000
Expenses from Corey's Hill to Boston, also according to report,	382,000
Distribution in the city, also according to report,	672,767

made an aggregate of	\$3,651,767
To which add ten per cent. for contingencies,	365,176
And for the accumulation of interest during the construction of the work, which was 20 per cent. in New York, and might be estimated at the same here,	803,200

and we should have as the aggregate of estimate, \$4,820,143

The subscribers for the water would of course not all take the water at once, and a very moderate period passing before income would be received, would raise the cost to five millions of dollars. To meet this there would be, if the calculations he had made from the New York receipts were correct, an income of but \$16,000.

Mr. Derby then proceeded to argue that there were other sources of supply which would be cheaper, urging that a private corporation was the proper body to provide this supply, but that if it was done by the city, the Legislature ought to restrict it to some reasonably moderate provision for its wants, and not allow it to calculate for a time so far distant, that the accumulation of interest upon the cost would make the expense enormous. He went into an analysis—in some detail—of the facilities of supplying the city, and the expenses of the several supplies from Charles River, Spot Pond, and Mystic Pond. He estimated the cost of introducing the water from Spot Pond, as follows:—

Water rights, - - - - -	\$60,000
Seven miles of iron pipe, at \$28,000 per mile, -	196,000
Crossing Charles River, - - - - -	50,000
Land Damages,	12,000

Cost of distribution in Boston, [according to the re- port of Mr. Treadwell in 1825, (p. 31) which estimated 23 miles of pipe at \$262,065, with the deduction of 1-3 on account of the reduced price of iron] - - - - -	174,712
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Making a total of - - - - -	\$492,712
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The expense of Engineering, &c. might increase this sum to \$500,000. There was no necessity for allowing for time and loss of interest, because the pipes could be cast in four months, and it would only be necessary to tap the pond and lay them directly down and the work would be completed.

As to Charles River, he referred to Mr. Wilkins's report to show that the water might be brought thence to great advantage and at small expense. If the water was brought from these sources there would be a reasonable prospect of income. The \$16,000 which he had already estimated increased by the saving of \$12,000 which had been allowed for repairs of a brick aqueduct, would form an income of \$28,000, and would be profitable on an investment of \$500,000.

As to security to be afforded against fire, either Spot Pond or Charles River would be more advantageous sources than Long Pond, because a higher head would be obtained. The progress of art indicated the propriety of using iron instead of stone, and he was surprised that the Commissioners who had recommended iron a few years since, when its price was high, should now when it was so much reduced, recommend masonry in its place, as it were, going back to barbarous times.

The character of the streets of Boston was changing. Business buildings were increasing in many of them, while the population was decreasing and being drawn off into the suburbs. It would be in Brookline and Cambridge that the water would soon be wanted. If then this expense was entered upon, it would be equal to throwing away $4\frac{1}{2}$ millions of dollars, which would increase taxes in the city 40 or 50 per cent. In the course of 20 years, this would amount to a loss by the city of 12 millions, for an expense for that which is unnecessary was a loss. It was a proper exercise of the power of the Legislature to prevent this waste—which would be felt through the blow it would strike at the general prosperity of Boston—and to preserve the application of the capital proposed to be invested, for the purposes to which it ought to be applied.

Mr. Derby here closed his opening remarks, and the Committee adjourned to meet on Thursday afternoon.

SIXTH DAY. *Thursday, February 13, 1845.*

Mr. Derby then commenced the examination of the witnesses for the remonstrants.

WARREN NIXON of Framingham. Is somewhat acquainted with Long Pond, has surveyed land in the vicinity of it, I drew the map which I hold in my hand ; a part of it I surveyed. There is woodland, I should think, on three-fourths of the distance about the pond. Some of it is decent sized wood, some of it small ; some of it considerably heavy.

Mr. Nixon then showed the Committee by a pencil mark upon the map, the basin which drained into Long Pond. There are 79 acres in the part of the pond which he surveyed, he supposes that there are 4 or 500 acres in the whole. There are two roads across the pond at different places, one is the Worcester turnpike, and the other at what was formerly called "the wading place." At these crossings the water is quite shallow. At the "wading place" the culvert is from 12 to 15 feet wide. It may be more but does not exactly know; cannot tell exactly the width of the pond at the wading place. It is perhaps twenty or thirty rods. The causeway extends over most of this distance.

Cross examined by Mr. Warren. Lives about 6 miles from the pond. Has had no particular reason for examining it. Mr. Knight employed him to set some marks around the meadows to show the extent to which the water would flow upon making an alteration of his dam—and afterwards he made some surveys in the neighborhood—can't tell the depth of the woodland about the pond. In some places it is very narrow, and in some it is much wider. The pond is in three divisions, and there is a current from the south to the north. Cannot tell what is the area within the pencil mark [showing the basin of the pond or the extent of country from which the water drains into Long Pond.] Cannot estimate it without going into a measurement and calculation. Attention has not been called to the subject till today.

HENRY RICHARDSON, examined by Mr. Derby. Resides in Framingham, is a farmer and has been employed by Mr. Knight to purchase land. There is a good deal of meadow flooded by waters of Long Pond when it rises. I cannot say how much, my attention never having been called to it till today. I should say for a guess there were one hundred acres. There is a quantity owned by the Framingham company, and another quantity which I have purchased for Mr. Knight. We have given from \$75 to \$125 per acre for it. One lot we bought for 60 dollars. There is one peat meadow, in which I believe there is about 20 acres. It has been a good deal dug for peat. The water stands in the peat holes.

On the Wayland side of the pond and down as far as to Natick, there is a good deal of wood on the borders of the pond—and so in the Framingham part. It does not run back so much as a quarter of mile, perhaps some places as much as 50 rods, in some only a few rods. Below the county road the margin is mostly meadow. I am not acquainted with the depth of the water. It is shoal in what is called the wading place, so far as I have observed.

We had damage to pay last spring for flowing over the road at

that place and one of the bridges had to be raised. Mr. Knight wished me to examine what would be the consequence if he raised the dam at the outlet two feet higher. I told him that the damage would be great and he would probably flow quite up into Sherburne. If the dam were raised two feet, we thought it would flow much meadow, and two travelled roads. The wash from these roads would go into the pond. We have very few sheep in our neighborhood; but I don't know whether they wash them in the pond or not. I have not observed whether the quantity of water has increased or decreased in the pond since I have lived near it.

By Mr. *Hubbard*. I made no estimate of the amount of land that would be flowed by raising the dam two feet. I only examined far enough to decide that it was not for Mr. Knight's interest to raise it so. I should think if the dam were raised five feet it would flow as far up as the middle of the town of Natick.

By *Committee*. The land about the woodland is a light sandy pasture. The usual rise and fall I can hardly tell. I have seen it as much as two feet and a half above the bolt in the rock which is "water mark;" this was a bolt put in to mark the level up to which the water might be kept in the pond by Mr. Knight by consent of the meadow owners. I have never been over the pond in a boat to ascertain the depth.

[*Mr. Warren* stated that no proposal was made to raise the water higher than the present dam.

Mr. Fuller of counsel for the remonstrants urged that if the water was not raised above its present height it would have to run up hill to Corey's hill.]

Mr. Warren desired to ask one question of Mr. Richardson but he had left the house.

CHARLES W. CARTWRIGHT (called.) Is president of the Manufacturers' Insurance Co.

The lowest rate on first class risks of insurance in New York is 45 cents, in Boston $37\frac{1}{2}$, being a difference of 33 per cent. in favor of Boston. In the grades below the difference is greater in favor of Boston. There is no deficiency of water in general in Boston to extinguish fires—sometimes there is in the outskirts. Salt water is as good as fresh for this purpose. An additional supply of water would not reduce risks much. If we had another supply, a head of 140 feet would be preferable to that of 120.

By *Mr. Bartlett*. I have lived here 26 years. For general purposes I believe it is generally considered that Boston is as well supplied as almost any city with water. I do not know about the supply of water at South Boston.

The premiums in N. Y. now are very much lower than they

were at the time just after their great fire. The number of losses paid and the breaking up of many offices at that time temporarily raised the premiums.

The question being asked "Do you know of any exigency for bringing water from Long Pond?" Objection was made that this course of examination might be carried to an unlimited extent, and that the witness had expressed his opinion by signing a remonstrance.

The Chairman of the Committee suggested that this kind of evidence could add nothing to the testimony furnished by the remonstrances.

Mr. Fuller, urged that at least such questions might be asked in behalf of the South Boston remonstrants.

The Committee were willing that such questions should be asked of a few intelligent witnesses, but it must not be carried to an unreasonable extent.

Examination continued. Witness believed that some sections of the city might need more water. But he did not think that there was now an exigency—or that Long Pond was the best source.

Cross-examined by Mr. Warren. Had no other interest in this subject than other citizens have. Had read most everything printed on the subject. Had not read the memorial of Wards eleven and twelve; had made no particular inquiries about the city in this regard. Boston rates of insurance on furniture are 40 cents—don't know N. Y. rates—I compare our rates of Boston insurance with our own rates in New York. Ours there are the same as the N. Y. rates. We have an agent in N. Y.; Mr. Asa Bigelow. I do not mean to say that there is an ample supply of water against fire. That would be very strong language. I do not believe that a large additional supply would materially reduce insurance. Boston is better supplied in this regard than N. Y. was before the Croton. Cisterns for this purpose are built by the city constantly, and there is an annual appropriation for the purpose of extending them. I do not know the annual expense of the fire department. Should think it more than \$50,000 per annum. I do not think it would materially decrease the expense of the fire department to introduce 300,000 gallons of water a day. I should think that it would decrease the cost of the fire department \$25,000. The amount of property exposed to injury by fire in the city is about 100 millions. I think the plan now proposed to be a very bad one. If the best plan could be found it might be a tolerable one. I am not aware that I have said more here than I said in my remonstrance.

Direct examination resumed by Mr. Derby. A large part of the taxable property of the city is *land* not subject to injury by fire.

By *Fuller*. Notwithstanding the Croton rates of insurance have never got down so low in New York as they were before the great fire, the extreme rise of rates just after that was in part owing to the decrease in the number of offices.

CALEB EDDY (called.) Has been agent of the Middlesex Canal, and the Merrimac River Canal, for about twenty years.

The question being asked what was the price of brick suitable to an aqueduct—

Mr. *Pickering* inquired whether the Committee thought it necessary to go into an inquiry as to the expense of materials, &c.

Judge *Warren* urged that even if the Committee should be satisfied that the Commissioners of the city had under-estimated the work, it would not affect their inquiry. They were not to act as a Board of Engineers for the city. A great part of the opening of the counsel for remonstrants went upon the ground that the report of the Commissioners was binding in every detail of the estimates upon the city. If this course of examination was entered upon, the city would not follow it up; and counsel wished to be understood that although they did not interpose a legal objection, this course of investigation was not entered upon with their consent.

Mr. *Derby*, said that this course of examination was intended to be short, and to show the delusion of the citizens of Boston in asking for this plan. He urged that the city was concluded by the report of the Commissioners, since that was the plan which had been supported, if any, by the popular vote.

In reply to question from Chairman, Mr. *Derby* said: We expect to show a very different state of facts from that reported by the Commissioners.

Mr. *Bartlett* followed on the same side. The burden lay upon those making an application like this, to show that an exigency existed, and to show the extent of that exigency, and this Government could not give a greater power than was needed. We then came to the question whether the scheme proposed was suitable for the exigency—on this question the errors and the fallacy of the plan were proper subjects for examination. The popular vote was not conclusive. He was tired of hearing it maintained that the minority in a municipal corporation, in such a case, were concluded by the action at the polls. The rights of the corporation were limited. When the majority went beyond those limits, the minority could come to the Legislature for protection.

Judge *Warren*, repeated the ground taken, and maintained

that when the people of Boston had decided to enter upon a public work, they were the best judges of its expense and mode. To be sure the public exigency must be made out ; but he asked the Committee if the remonstrants did not admit the exigency. They did not dare to deny that the want existed, and if the want existed, the exigency was as great, whatever might be the cost. [Mr. Bartlett asked leave to explain that he conceded that there was a want of water in parts of the city, and that he wished the Legislature only to exercise the power of eminent domain to the extent of the exigency.] Mr. *Warren* resumed. It was attempted to be proved that the city was under a delusion, and that only the six or seven hundred remonstrants were sane upon the subject. Why should the Committee presume that the city did not know what it was about. But the true view of the question was this : The law granting this power would undoubtedly be referred to the people for acceptance by its own force. These detailed inquiries would then be gone into in their proper place. The city did not fear these inquiries about the price of brick, &c. They were prepared, in the most conclusive manner, to sustain their estimates ; but it was clear that in every step of this examination we were getting away from the true objects of legislative inquiry.

Mr. *Bartlett* urged that the minority had a right to be protected by the Legislature on the question of taxation.

[The Committee decided to hear a witness or two, with the intention of stopping this course of examination when they should see fit.]

Mr. *Eddy's* examination was continued, as to the structure, as to the expense, and as to the sufficiency of the supply. Mr. Bartlett said that he wished to show by this witness that the Commissioners had proceeded so carelessly in their examination and estimates, that the project was unworthy the attention of the Legislature.

[Mr. *Eddy* having been questioned as to other sources of supply of water,

Mr. *Pickering*, on behalf of the city, again objected to the course of the inquiry.

Mr. *Hubbard* urged that the city asked for two powers which it does not now have as a municipal corporation ; the one, the right to take lands of individuals for this aqueduct, on giving remuneration in such manner as the Legislature might direct ; and the second, the right to tax the citizens of Boston for this purpose. In this view he maintained that this examination was proper.

The Chairman said that the case appeared to stand thus : It was admitted, on all hands, that there was some want, at least, of

water ; the city asked for power to bring it from a particular source. It seemed to him, therefore, proper to go into evidence to a reasonable extent, to show that there were sources from which the water might be brought at less trouble and expense. It seemed to him that it would be sufficient for their purpose merely to show that there were such sources, without going, on this question of expediency, into details.]

Mr. *Eddy's* examination was resumed, and he went on to give his views of the expediency of bringing water from Spot Pond. According to his recollection of the survey and project of his son, for bringing water from that source, the expense was estimated at four or five hundred thousand dollars, exclusive of the distribution. The cost of iron pipe has decreased since then. He believes the supply from this source would be as great as could be sold for a fair price for twenty years to come. The reason for this belief is, that many citizens have constructed, recently, large and expensive cisterns. He himself had one which had cost three or four hundred dollars. Mystic Pond alone would furnish a full supply for the city, according to his observation, in the driest time. There was a great deal more water poured from its outlet, every year, than there is from Long Pond. If the wants of future generations should require more than Spot Pond, this would be an abundant and desirable source. Believed the water of Spot Pond to be as good as any in the vicinity of the city. Its height is one hundred and forty-three feet over marsh level. [The question being asked whether he considered it the part of wisdom to make an outlay for such a purpose, for future generations, was objected to, and the Committee decided that it should not be asked.] Spot Pond would furnish an ample supply for the higher levels for all time.

In reply to questions from the *Committee*, Mr. Eddy stated the comparative heights of the different ponds named. Spot Pond was 140 feet, Mystic Pond ——— feet, and Long Pond 123 feet above.

Cross-examined by Judge Warren. I don't know how many embankments will be needed by the Long Pond aqueduct. I have not measured the height. I have run my eye over the plan. I have not been on the ground. I have gone into no estimate as to the embankments required. Do not know how much stone work would be required. [The cross examination was continued for some time, to show—and Mr. Eddy said—that he had no further knowledge of the facts with regard to Spot Pond, and the introduction of water from it, than that which was in the various printed reports.]

The Committee then adjourned to the next afternoon, Friday, at 3¼ P. M.

SEVENTH DAY. *Friday, February 14, 1845.*

Mr. Josiah Adams, of Framingham, read the following statement of facts, as what the Framingham remonstrants had expected to prove, if their witnesses had been examined, and these facts, so far as they would have been evidence, were admitted as such by the counsel for the city :

“ In the case of the City Council of the City of Boston, Petitioners to the Legislature for a charter to take water from Long Pond and other ponds and streams in Framingham and other towns ;

“ The inhabitants of said Framingham, remonstrants against the granting of said petition, by their agents, state the following facts, which they expect to prove :

The population of said town, by the census of 1840, was	3,030
It is now believed to be at least	4,000
The population of Saxonville is believed to be	1,600
The taxed polls in Framingham were in 1840	689
“ “ “ “ “ 1844	876
The valuation of property in Framingham was in 1844,	\$1,474,010
The taxable property in Saxonville is now valued at $\frac{1}{3}$ part,	491,336
The amount taxed on real estate in Framingham in 1844, was	\$5,861
The amount taxed on personal estate in 1844, was	2,117
The amount taxed on polls, in 1844 was	1,306

The whole amount of taxes being \$9,284

The Highway tax is not included in the above.

The taxable polls in Saxonville are now believed to be 360

“ The factories of the New England Worsted Company are in Saxonville on Sudbury river. They are of great value and are in a very prosperous condition. In the dry season they are much benefited by the right to take the water of Farm Pond. Over 400 operatives are now employed there. The amount paid them each month is over \$7,000. Its manufactures of the last year amounted to \$550,000.

“ Mr. Knight’s carpet manufactories, (consisting of four large buildings and several others) are also in Saxonville, and the water power is derived from the outlet of Long Pond. They are all in a very prosperous condition. Two of them have been built during the last year, and the foundation is laid for another. More than 200 operatives are employed ; additional machinery is procured and 50 more men are wanted *with families* to supply the additional demand. The business done for the last year has

amounted to \$200,000. The amount paid the operatives per month is about \$4000.

“ Many of the operatives in both these establishments are the owners of houses either purchased or built by themselves, and several of them have paid but a part of their cost, and depend on the labor in the factories of themselves and their families to pay the remainder which is secured by mortgage. There are many other dwelling houses in Saxonville which depend for their value on the prosperity of the factories. There are three religious societies, two of which have houses of worship; there are five prosperous stores, doing a business of at least \$90,000 annually.

“ About equidistant between Saxonville and the Centre Village is a grist mill, on Sudbury river, with which is connected a saw mill and a plaster mill. This is also benefited by the water of Farm Pond. In the summer season this has often for a long time been the only grist mill in the town which is supplied with water; and there is no other within several miles.

“ Within four miles of Long Pond are Learned’s Pond, Farm Pond, Shakum Pond, Dug Pond, and Gleason’s Pond, and Sudbury River. By a dam of 4 or 5 feet, the water of the river south of the village may be turned into Farm Pond, thence into Shakum Pond, and thence into Long Pond. The water of Learned’s Pond may also be easily turned into Gleason’s Pond, and thence into Long Pond. Such variations in the waters would much injure the owners of the adjacent lands. The shores of Long Pond are principally woodland, and it is believed that if the wood should be taken off the water would be diminished in the increased evaporation.

“ If both, or either of the manufacturing establishments should cease, the injuries to the town of Framingham and its inhabitants would be incalculable. A valuable market for the farmers in the vicinity would be lost and the value of real estate much diminished. The wood used annually at both these establishments costs over \$5,500; and the wood used by the inhabitants of Saxonville costs them as much as \$3,500 annually. It is computed that the article of milk alone amounts to over \$4,000 annually. Potatoes in very great quantities, find a ready market at 30 cents the bushel, and produce annually at least \$2,400. Hay is a still more important article, as there are two livery stables, and its annual consumption cannot be less than \$3,000. The vegetables and the various other productions of gardens and farms are sold in great quantities to an amount which cannot be computed with much certainty.

“ The taxable property in Saxonville being \$200,000, excluding the factories, the loss to the owners, for which no remedy is provided by law, would be as much as \$100,000.

“ The loss to the town in taxes annually, would amount to about \$2,000, leaving out of the account the depression of property in the other parts of Framingham, which would be greater or less, in proportion to its proximity to the Saxonville market.

“ The waters of Long Pond, though deep in some places, are very shallow in others. The Worcester turnpike crosses it at one such place, and a county road at another; which last was called the wading place before the road was made.”

Mr. *Fuller* of counsel for the remonstrants, continued the evidence by putting in a statement as to the cost of the Haarlem river bridge, viz: that the cost of the whole of section 86 of the Croton Aqueduct, which includes that bridge, would be by the estimate of the report quoted \$931,000. [Semi-annual Report of New York Water Commissioners, January 6, 1845.]

Mr. Fuller went on to read from p. 121 of same reports to show the necessity of larger reservoirs than those proposed by the Commissioners; from pp. 422 and 423, to show large amounts paid for land and water damages; from the previous report, July 1, 1844, p. 138, to show that the Croton works had required repairs; and from p. 139 to show the general necessity of repairs on public works; from pp. 140 et seqg. to show the nature of expenses which arose upon such works after they were completed.

Mr. Fuller put into the case some specimens of water from Jamaica, Spot, and Long Ponds, and read a letter from Hinckley and Drury, of January 31, 1845, in answer to some inquiries of Mr. Derby with regard to the cost of steam engines to pump water, and of working them.

Also, a letter from Cyrus Alger & Co. to the same, February 5, 1845, with regard to the price of iron pipe.

Also, a vote of the City of Boston, November 25, 1844, ordering the printing of the Report of the Water Commissioners of 1844, and also that of 1837 for distribution.

Mr. NATHANIEL GODDARD of Boston was then sworn. Examined by Mr. Fuller. With the exception of seven years, has resided in Boston since 1783. Know very little about the water in South Boston, with the exception of a living spring in a hill, which formerly supplied a brewery with which he was connected. Some shipping was supplied from there then, although I believe the water boats now get their water from Chelsea. I never have heard that there was a want of water here for shipping. I am connected with Union wharf and Constitution wharf. I have dug a well on Union wharf, and with the aid of a bore and iron pipes we now have water there.

At Constitution wharf, we have a well which has an abundant supply and fifty families are supplied by it. It washes very well,

much better than the water of a well opposite, which is much of the time hard, and cannot be used for washing. [In reply to questions, Mr. Goddard mentioned several wells in different parts of the city, where the deep natural springs—when the “surface water” could be kept out—furnishes good soft water. Had never heard of any want of water at the North End, when they dug a well. I now live in Pemberton Square. There is no want of water there.]

Cross-examined by Mr. Warren. I have never heard that there was any want of water for ships. They are mostly supplied from Chelsea. I don't know that they don't pay a little something for it. On Constitution Wharf, I locked the pump once for a few days, because I had no drain to carry off the waste water. Since I prepared that, there have been plenty of people there to get it.

I dug three wells in Summer street, to accommodate different parts of my establishment. I don't know exactly the expense of my well at Constitution Wharf. It must have been over \$500.

MR. ISAAC LIVERMORE, (sworn.) Knew the Bath House estate well. It is a very good well, and Mr. Lawrence, who has recently bought the estate, gave leave to the neighbors to lay pipes to it for their supplies. I availed myself of it, and many people come now daily to use my pump. I should think I have seen as many as twenty while I am there each day, which is, however, but for a short time.

NOAH BROOKS, (affirmed.) Examined by Mr. *Fuller*. Lives near the centre of South Boston, and as far as he knows, the whole of South Boston is generally well supplied with water. Thinks no foreign supply of water is needed there. Believes population of South Boston to be about 8,000. Springs abound about the shores of South Boston, and several of the boats that supply shipping with water, get it from South Boston. There have been two men engaged in this business there, and there is one there now. I know of no want of water in South Boston.

Cross-examined by Mr. Warren. I don't know how many reservoirs for water, against fire, there are in South Boston. Should think there might be seven or eight.

Direct examination resumed. Have lived in South Boston twenty-seven years. I don't know of any persons there who would be likely to take foreign water introduced there for their family use. It might be taken for factories.

WILLIAM WRIGHT, sworn. Examined by Mr. *Fuller*. Has lived in South Boston, and now owns vacant lands there.

Always had the impression there was plenty of water there by digging. So far as I am concerned I would not give anything to have more water introduced there.

JONATHAN PRESTON, sworn. Examined by Mr. *Fuller*. Lives in Boston; has been in both branches of the City Government of Boston, in the Council three or four years, and in the Board of Aldermen two years. Paving brick costs, on the average, from nine to ten dollars. Brick to carry water would be more costly, because some required for paving would not answer for a culvert. Brick for an aqueduct would be worth from ten to twelve dollars, delivered in Boston. Hydraulic cement is worth three dollars a cask. I have had some experience in building brick structures. An earth foundation is not so secure as a stone one, for brick work. We attempt, in laying a heavy structure, to get a secure foundation for it. Artificial embankments of earth have a tendency to settle in the course of years. I only know this as a general matter, not having had occasion to build embankments. I voted to instruct the Mayor to present the petition on which we are now acting. The reason I did so was, that I am in favor of water from some source, and voted according to my judgment, and not according to popular instruction. I thought that there ought to be farther examination of sources. I did not think that the people ought to be prevented from petitioning the Legislature.

I examined the Report of the Commissioners on this subject with as much attention as I had time to before acting on this subject—and I have examined it since. I and others thought there were other sources that ought to have been more fully examined and I think so still. I have my doubts whether the estimates of the Commissioners would cover the expense of the Long Pond project. I don't think the work they propose would be so perfect as the Croton works.

By Committee. I think there is a want of water in the city—but I don't think so large a quantity is needed as the Commissioners estimate, because I do not think that so large a number of persons will ever live within the lines of the city proper as they have estimated; the number of stores increasing in many wards and the number of dwelling houses decreasing.

By Mr. Bartlett. I think that the quantity of water which the report of the Commissioners estimates for *Spot Pond*, with the aqueduct now existing, would be sufficient for the supply of the city for many years.

By Committee. I should have been inclined to apply to

the Legislature for leave to bring in water had there been no popular action. I should not have wished to confine the inquiry to one source.

Cross-examined by Mr. Warren. I should prefer that the city should bring in water from Long Pond than that its bringing in should be delayed four or five years, if I felt perfect confidence in the estimates.

LEMUEL SHATTUCK. Sworn and examined by counsel for remonstrants. Have lived in Boston 11 years—was in the City Council from 1836 to '42. My attention has been directed to the subject of bringing in water, and I have a series of reports both of Boston and New York on this subject, and I have made an examination of the population with view to its wants. I was one of the Committee employed to take the State census of the city in 1840, and I also have the United States census. I have prepared a paper containing the facts with regard to the population and its changes, with my conclusion on the subject. Mr. Shattuck then read from this document.*

With regard to the necessity of a supply of water he first went into an investigation of what districts are now supplied. He considered the supply from Jamaica Pond sufficient for the supply of the whole section of the city south of Essex and Boylston streets, supposing that the water it now furnishes to persons north of that line were transferred to the section south of it. Next he considered South Boston and East Boston as within the *supplied* section, the latter because the water from none of the foreign sources proposed would benefit them. He estimated the whole population of Boston in 1840 to be 85,000—correcting a supposed error in the United States census which states it at 93,382 by a comparison with the State census made the same year. If we deducted from this number 26,000 as the population of the supplied section (24,043 for the district south of Essex and Boylston streets and 1,957 for East Boston and the Islands,) we should then have 59,000 persons who lived here in 1840, among whom if any the necessity existed. These are distributed in 6179 dwellings according to the last State valuation when there were 8,902 dwelling-houses in the city, if the same proportion of inhabitants to dwellings exists in all sections of the city.

*The facts and arguments of this document have since been embodied and published in a pamphlet under the title of "Letters from Lemuel Shattuck in answer to interrogatories of J. Preston in relation to the introduction of water into the City of Boston."

With regard to the probable increase of the want for water the witness made a calculation upon the number of rateable polls (as being an approximate guide to the number of inhabitants) in each section of the city. He submitted the following table:—

	In 1840.	In 1844.	Increase.	Per cent.
Polls in the whole city,	17,696	22,339	4,643	26
Polls in the 'Supplied Section,'	4,800	7,273	2,473	14
Polls in other sections,	12,896	15,066	2,170	12

It appeared from this statement, that the polls in the supplied section had increased 14 per cent.; 2 per cent. more than in all the rest of the city. Estimating the increase of the population to be 26 per cent., on 85,000, the same ratio as the increase of the polls, we should have an increase of 22,100, or 107,100, for the present population of the whole city; 14 twenty-sixths of this increase, being 11,900, was to be added to the 26,000 in the supplied sections, which would give them 37,900, and 12 twenty-sixths being 10,200 to the 59,000, which would give 69,200 to the rest of the city. He urged that there was no probability of an increase of the *population* of the city in the section north of Boylston and Essex streets, although the *business* would increase in a rapid ratio.

Mr. Shattuck then passed to the history of the Croton aqueduct, and read the following passage :

“ The project of bringing the water of the Croton River into the City of New York was surveyed several times, by different boards of engineers ; and, finally, after the most careful estimates of the expenses, it was submitted to the citizens, for their approval or disapproval, in April, 1835, under the positive assurance that the expense should not exceed \$4,250,000 for the aqueduct, and \$1,261,629 for distribution ; and ‘ that the income which would accrue to the city, from very low charges for supplying the water, would overpay the interest on the cost of the work.’ The vote was taken in April, 1835, and 17,330 voted ‘ yes,’ and 5,963 ‘ no.’ The project was prosecuted, and water was introduced into the city in 1842, though the work is not yet entirely completed. The debt incurred on this account, May 1, 1841, was \$7,949,377 ; May 10, 1842, \$10,838,562. The public documents of the City of New York give the following account since then :

	Jan. 1, 1843.	Jan. 1, 1844.
Paid Water Commissioners on Con- } tracts, &c.,	\$7,900,790.24	\$8,173,003.74
“ Water pipes and laying,	1,804,149.53	2,087,251.87
“ Interest to August 1, 1842,	1,577,459.43	1,577,459.43
“ Specie to pay interest in 1837 and } 1838,	2,831.18	2,831.18
“ Water loan expenses,	6,840.81	8,290.13
“ Preservation of works during riot,	3,146.56	3,146.56
“ Discount on sale of stocks,	647,157.32	647,157.32
Total payments at those periods,	\$11,942,375.07	\$12,499,140.23

On the 10th of August, 1844, the water debt was as follows :

At 5 per cent.	\$9,285,232	Annual Interest,	\$464,261.60
At 7 per cent.	2,000,000	“ “	140,000.00
At 6 per cent.	1,062,973	“ “	63,778.38
At 4 per cent.	288,693	“ “	11,547.72
Total debt,	\$12,636,898	Annual Interest,	\$679,587.70

“ Prior to August, 1842, the interest on this debt was added to the principal, and constituted a part of the debt ; since then, it has been paid by a tax on the people. For the three past years there has been raised, by tax, about \$1,800,000 to pay interest, which, added to the \$12,636,898, will make about \$14,500,000, which the city has paid, or become liable for, on this account. And the work is not yet done.”

“ This aqueduct was estimated to produce a ‘ handsome income ’ on the expenditure. The following statement, for 1844, will show how far that estimate has been realized :

The gross income from the water rents for 1844,	
was	\$102,600
From which deduct the annual cost of maintaining the aqueduct from the Croton River to the city, about	25,000
Repairs of hydrants, stop-cocks, breaks in water-pipes, tools, &c., about	25,000
Salaries of the ‘ Croton Aqueduct Board,’ consisting of twenty-six individuals, exclusive of laborers,	20,919
	<u>70,919</u>
Net income of the water rents for 1844,	\$31,681

“ This is equal to six per cent. on a capital of \$528,016, or about *one quarter of one per cent.* on the investment ; not so very ‘ handsome income ’ as some may desire on capital. There were in November, 8,644 water takers, which gives a net income of \$3.66 each. 6,175 of these water takers are for

private dwellings, varying from \$5 to \$27 gross each. Of the miscellaneous takers there are 76 steamboats, averaging \$74.04 each, and 118 steam engines, averaging \$50.50 each, both producing 10,586 ; but a small portion of which could be obtained in Boston."

Mr. Shattuck then put in the following table, exhibiting the aggregate valuation of property in Boston ; real, personal, and total ; the polls, the tax assessed, and the number of cents in each \$100 valuation, at the different periods specified :

Year.	Real Estate.	Pers'l Estate	Total Valuat'n	Polls.	Tax.	On \$100
1800	\$ 3,550,500	\$ 4,097,350	\$ 7,647,850	4,538	\$ 73,428,75	
1810	10,077,200	8,372,300	18,449,500	7,754	144,486,72	39
1820	21,687,060	16,602,200	38,289,200	7,810	165,228,30	40
1825	30,992,000	21,450,600	54,442,600	11,660	201,039,10	35
1830	36,960,000	22,626,000	59,586,000	13,096	260,967,30	40½
1835	47,552,800	31,749,800	79,302,600	16,188	408,899,61	48½
1836	53,370,000	34,895,000	88,245,000	16,719	444,656,65	47½
1837	56,311,600	32,272,200	89,583,800	17,182	473,692,00	50
1838	57,372,400	33,859,200	90,231,600	15,615	465,557,34	49
1839	58,577,800	32,248,600	91,826,400	16,561	543,660,66	56½
1840	60,424,200	34,157,400	94,581,600	17,696	546,742,80	55
1841	61,963,000	36,043,600	98,006,600	18,915	616,412,10	60
1842	65,499,900	41,223,800	105,723,700	19,636	637,779,09	57
1843	67,673,400	42,372,600	110,056,000	20,063	712,379,70	62
1844	72,048,000	46,402,300	118,450,300	22,339	744,210,30	69

From this table it appeared that the whole tax of the city in 1830, was 40½ cents on \$100 of the valuation ; in 1844, it was 60 cents. This was a proportional increase of 50 per cent. The taxes, in 1830, were \$4.25 to each inhabitant ; in 1844, they were \$7.00 nearly, showing about the same relative increase on the population as on the valuation.

The direct examination of Mr. Shattuck was continued by Mr. *Bartlett*.

The Reports of the Commissioners, with the exception of Mr. Baldwin's, and that of all the Mayors, have always been in favor of Spot Pond. My impressions have always been that to bring water from Long Pond would be ruinous to the city. I have been satisfied that the excess of the annual expenses of that project over the receipts, would be \$200,000. I think Spot Pond would be sufficient for more than twenty years, from the view I have given that the increase of population in the unsupplied portion of the city must be small.

Cross-examined by Mr. Pickering. I consider the inhabitants who are *supplied*, to be

The population of wards 10, 11, and 12,	21,762 inhabitants.
One-third of ward 9, (between Essex and Beach streets,)	2,281 “
Part of ward 4, (East Boston and Islands,)	1,957 “

Total supplied district, 26,000 inhabitants.

I learn from Mr. Dexter that the Aqueduct Company supply 3,500 tenants, 3,000 of whom are supplied perfectly, and 500 imperfectly. 2,000 of those perfectly supplied, live South of Essex and Boylston streets, and the other 1,000 North. I estimate that if the water now used by these 1,000, and the 500 imperfectly supplied, were transferred to the South of the line indicated, this aqueduct might be considered sufficient to supply that South portion for a long time.

ALLEN HINCKLEY, examined for remonstrants by Mr. *Hubbard*. Has care of Boston Aqueduct Company's works. The map before the Committee contained the routes of the logs of that company. There is not a full supply of water in the extreme north part, beyond Stillman street. They get water pretty well on the new made land by the Lowell rail road. We have about 3,500 customers—3,000 well supplied and 500 not fully supplied.

Cross-examined by Mr. Warren. We do not limit our subscribers closely if they can get the water—we require great care that the water shall not be wasted—we charge according to the size of the family—5 persons \$10 and so up to \$15. We have'nt raised the prices since I have known about them. We have raised on the Worcester rail road. I presume we have doubled. I don't know that the company have told that rail road that they cannot give it all the water it wants. Around Winter street and West street they get water pretty well. In Franklin place they get it pretty well. I know that recently it failed for a fortnight. There are always complaints. The bills read that there will be a deduction when the water fails for over three weeks. We laid a pipe to supply the Tremont House, but the water after a time failed to run through it.

Direct resumed by Mr. Derby. There are some houses which are fully supplied all the time.

Cross-examination resumed. A part of the time last summer all our customers were supplied. Complaints come from people in Tremont street, between West and Boylston streets, but generally from the defects of their own pipes. The supply at the North End is not large, it was injudicious to extend

the enterprise so far. Last year the supply was cut off in some streets for a fortnight by the gates being shut down. I have known the water in the pond so low that it would not run into the pipes, and I have known it some nine feet above. The Jamaica pond is fed principally by springs. There is only one stream running into it, but it does not run into it all the time.

The Committee then adjourned to Monday, P. M.

EIGHTH DAY. *Monday, February 17, 1845.*

The Committee met according to adjournment, and the remonstrants evidence was continued.

JOSEPH BALCH, sworn. I am President of the Merchants' Insurance Company. That company owns the Dalton estate, so called, in Spring lane in this city. We have built upon it within some years. When we built there, the old well existing there troubled us much, because the water continued to rise there after we filled it up. It cost the company \$1000 to stop it down. They still draw it there from a faucet. We offered it to the city if they would lay pipes to carry it where it was wanted. I presume it now runs off in the city sewer. I do not know the exact apparatus, but do not doubt that there is enough water running to waste there to supply all the inhabitants of Broad street, and all the reservoirs below the spring.

I have been connected with the Merchants' Insurance Company for 24 years. I think there are means enough of supplying water to extinguish fires around the margin of the city, in the tide water which could be brought into reservoirs and kept there by flood gates. At the fire in Doane street, the loss was wholly occasioned by want of water. I don't think the water from the roofs of stores, if reservoirs for it should be built, would be a safe reliance against fires, because we have long periods without rain. I don't know the facts about the wells in the higher parts of the city.

Mr. *Bartlett* here put in a copy of the vote under which the petition under consideration was presented; with a certificate of the City Clerk, as follows:

"At a meeting of the Board of Aldermen of the City of Boston, December 23, 1844. On passing the order instructing the Mayor to make immediate application to the Legislature for the grants of such power to the city as may be necessary to carry the resolve into effect. The following voted in the affirmative: viz. the Mayor, Aldermen Wetmore, Crane, Longley, Parker and Rogers—6.

“Aldermen Lowe, Wilkinson and Robinson voted in the negative. The above complete the whole Board of Mayor and Aldermen.

“Attest,

S. F. McCLEARY, *City Clerk.*”

LARRA CRANE, SWORN. Is an Alderman of the City of Boston—voted against the introduction of water at the polls, but thought it my duty as an Alderman to vote in favor of the City Council’s petitioning for the water, because I thought the popular vote was such that the Council ought not to refuse so to do. I think there is a want of water in some portions of the city. My view of the question is that the water ought to be brought from some source where the supply would be better and the head higher than at Long Pond.

Cross-examined by Mr. Warren. I should be glad to see the water brought in, but not by the City Government. My own consideration of the subject has led me to repent of my vote in the Board of Aldermen. I have learnt since how the vote was got from the people. I moved a reconsideration in the Aldermen, but I have withdrawn it. I live in South Boston and have a good well on my premises.

Direct resumed. I ascertained after the vote was taken that the people did not vote understandingly on the question, and I heard that the votes with “nay” on them were abstracted from two of the wards before the voting began.

Cross-examination resumed. I can’t say that any individual has told me that he did not understand the question when he voted in the affirmative. I can’t say that the general impression which I received that the question was not understood, has not come from those who voted in the negative. I have’nt changed my opinion about the propriety of bringing in the water by the city—but I thought myself bound to vote for the petition, on account of the strength of the popular vote.

Direct resumed. One reason why I changed my mind with regard to the effect of the popular vote, was that the Commissioners’ Report of 1837 was not circulated before the election.

Cross resumed. I do not know whether the printer had time to get it ready for distribution. I was not a party to prevent this report going to the people—I do not know that any of my associates in the City Government were parties to such a project. I do not mean to impute such motives to any of them. I am not satisfied with the estimates of the Commissioners. They have not made up the amount of damages with sufficient particularity.

BENJAMIN P. RICHARDSON, SWORN. [Being asked about his vote in the Council on this subject, the question was objected to, and after an opinion expressed by the Committee was waived.] The messenger came to me for a copy of the report of 1837 to print from, a few days before the vote. I have been a member of the City Government for six years. From the action of the citizens, I judge that there is not a general want of water. If there had been, I think it would have been called for in a different way. [Mr. R. went on to give his recollection of the history of the matter since 1838, in the City Councils.]

Cross-examined by Mr. Warren. I examined the report of the Commissioners of 1844, as a member of the City Government. I thought that they had not had time to make sufficient examination on some points I considered important. I don't actually know that there is not a general want of water. From the indications I have alluded to, I suppose that there is not a general want.

Direct resumed. One of the indications to which I allude is that three anti-water candidates were elected as Aldermen.

By the Committee. The question of water or no water was not made a question at issue of the first Aldermen election. There was a "water ticket" at the second election, but I believe it did not get 100 votes.

H. B. ROGERS, SWORN. Is an Alderman of the City of Boston. Had not examined the subject of water sufficiently to have a decided opinion upon the various sources.

JONATHAN CHAPMAN, SWORN. Was mayor of the city in the years 1840, 41, and '42. Was member of the Council from 1837 to 1840—was member of the Water Committee in 1837—was during this time in favor of the Spot Pond project.

[The Counsel for remonstrants were proceeding to inquire into Mr. Chapman's opinions of the various projects, when Mr. *Warren*, on the part of the city, objected on the ground that testimony as to opinions on one or the other side might be brought to an indefinite extent. The Committee decided that investigations with regard to fact might be inquired into.]

Mr. Chapman continued. He had seen Long Pond, and read the reports of 1837 and 1844. He had on this examination preferred the Spot Pond to the Long Pond project.

In answer to questions *by the Committee.* I had no doubt from my examination of Long Pond in 1838 that the water was good. I believe that there was no doubt that the water

from all the sources was good enough. Spot Pond was considered the purer, but the question did not turn upon that. I considered the want exaggerated. There is undoubtedly a want, but in many cases temporary, such as the individual can get along with—and a permanent supply would not be needed to supply it. It was believed in 1838 that much greater certainty existed with regard to the estimates concerning Spot Pond than those concerning other projects. I had no doubt that either would furnish a sufficient supply for the city for all time, and partly because the increase of the city, from the nature of that increase, would not require a commensurate increase in the supply of water. Spot Pond is more elevated than Long Pond, and although Mystic Pond is not high enough it was thought it might be brought in as an additional supply to furnish the lower level of the city.

Cross-examined by Mr. Warren. The expense of bringing a larger supply than is needed is one of my objections to Long Pond. I have made no estimate of what would be the reduced expense of bringing in a smaller amount. I think the tide does flow into Mystic Pond. Part of the project was to dam the water out. I presume such a dam would have the same effect as at Long Pond—It would however depend upon the level of the country about. I have not seen Spot Pond since 1838. I have no farther ground of opinion as to the facts than the Committee have. There never was a question made but that the water of Long Pond was perfectly good.

My impression with regard to the cost of the city reservoirs is, that the annual appropriation is \$1000, and is intended to build two reservoirs. I cannot say that it is not \$2000, but it is intended to build two reservoirs. They are built according to a report from the Chief Engineer which state, what reservoirs are needed in the order of their importance. The annual cost of the fire department is from \$50 to 60,000.

WILLIAM FOSTER, (sworn.) Was examined as to the effect upon the irrigation of a country by cutting down forests, and testified to the drying up of certain rivers in Spain known to have been rivers at the time of the Roman invasion of that country, when the country was strictly wooded, and are now dry and have been since the time of Ferdinand and Isabella, the wood about them having now been cut off. He also gave some further facts and opinions of the same sort. He had no doubt that the quantity of water in

ponds depended upon the wood upon the sides of the banks which surround them.

Cross-examined by Warren. Thinks that the lower the level of the pond the more abundant will be the supply. I know nothing about Spot Pond or Long Pond.

Robert H. Eddy. (Examined by *Bartlett.*) Is a Civil Engineer. I made a report on this subject to the city in 1836—That concluded with a recommendation to take Spot and Mystic Ponds for the supply of the city. Spot Pond first and then Mystic when more water should be needed. The cost was stated in the report. I think it would be less now from the reduction in the cost of iron pipes and of steam engines. I am inclined to think the saving on the then estimated cost would be considerable. I endeavored to make my examination with care, and am inclined to think that Spot Pond would be sufficient for the supply of the city for many years. I do not mean to say that any material advance has been made in the structure of engines for pumping water for 20 years. Many conjectures have however been made certain in that time. I have not read the Commissioners' Report of 1844 very particularly. I did not perceive any recommendation of a stone structure to support the brick aqueduct. I should not think the structure recommended sufficient. I cannot answer whether a descent of three inches in a mile is sufficient. There are formula to calculate this, and all disturbing elements are to be taken into consideration. I have not examined Long Pond particularly, and I do not know much of the water rights and privileges dependent upon it. I have no doubt that Spot Pond would be sufficient for the supply of the city for many years. I cannot say with regard to the adequacy of Mystic Pond for the time when more should be needed, for I cannot say how large the city will become, or the exact quantity of water that the Mystic would supply. At the time of my report I thought that the two ponds would be all sufficient. I had an analysis of the Mystic water, made by Dr. Jackson. It was very good water. I believe that at very high tide the sea water flows into Mystic Pond. I found nothing to lead me to suppose that the water was much affected by the salt water. The amount of flowage to arise from a dam to shut out the sea water, is exhibited in my report.

By Mr. *Hubbard.* It is found now that the Cornwall engines will perform more with a certain amount of coal than was supposed at the time the Commissioners of '37 made their estimate. My estimates were higher than theirs.

One engine is stated to have raised by 112

lbs. of coal 1 foot,	108,109,102 lbs.
Another engine,	112,000,000 "
" "	122,000,000 "

[*Wickstead on the Cornish Engines, London, 1841.*]

It struck me that the Commissioners' estimate was insufficient. One ground for this opinion is, that a reservoir containing a supply for a single day only, was an unsafe resource.

The Committee then adjourned until the next day, (Tuesday,) at 3¼ P. M.

NINTH DAY. *Tuesday, February 18, 1845.*

The Committee met according to adjournment, but adjourned without further action, to the next afternoon.

TENTH DAY. *Wednesday, February 19, 1845.*

The remonstrants evidence was continued.

JONATHAN ROBINSON. Resides in Malden, about two and a half miles from the outlet of Spot Pond. I occupy three-quarters of the water power from it in an undivided right. The other undivided fourth part is owned by another individual. My business is the iron and nail business. I have made a calculation of the amount of water in the pond by using my water wheel as a measure. The water wheel is 22 feet in diameter; it turns 9 times in a minute; the length of its buckets is 12 feet; the depth of apron or rim of wheel is one foot.

This gives 792 cubic feet of water for each bucket every revolution, which, multiplied by 9, for the number of revolutions per minute, by 60 for the minutes in an hour, and by 10 for the working hours per day, makes

4,276,800 feet per day of 10 hours.

Multiplying by 7½ gallons to cubic foot,

We have 32,076,000 gallons per day.

Deduct ¼, 4,009,500 for wood of buckets.

28,066,500 gallons every day of 10 hours.

My acquaintance with the pond commenced two years ago in October, and I have had the management of the gate since then. We did not draw much water in the first fall. But during the first winter we drew off nearly all the water to within a foot and a half of the sill. Early in March we shut down the gate, and it remained down until some days after the 17th of June. But on the 16th of May the pond was

full, and the water began to run over the gate. There is a small leakage, about as much as would run through a two inch auger hole under a foot head. In this time the water, therefore, rose five feet.

In the summer of 1843, we were running our mills night and day—both wheels, the one above spoken of, and another of about half its capacity. We drew the pond down quicker than it was ever drawn down before. We run thus, till about the 4th of July, when all parties finding that we were draining it off too fast, we reduced the rate. Seven-eighths of the power we used during this time, was from Spot Pond. We were able to run one large wheel half the time during the summer of 1843.

The average area of the pond I assume at 220 acres, (the lowest being 180, and the highest 280 acres,) and I consider that if this is so, the pond, when once filled up to the mark, seven feet above the bottom of the flume, would furnish 1,800,000 gallons per day through the year.

I have never seen the day when there did not some water run from the pond. The lowest I saw it last summer, there was about half an inch on the sill. That lasted about eight days. A moderate rain then raised it six inches, and it so remained, notwithstanding the gate was opened till more rains filled it higher. I have no doubt that the pond would fill twice in the year, if not obstructed. This I judge from the pond having filled, about March, 1843, five feet in a month. Last March (1844) we shut the gate again, and by Fast Day it had filled up to within eighteen inches. This season we shut the gate about Thanksgiving time, the water then being about six inches over the bottom flume, and we had occasion to use the water two weeks since, when it had risen to four feet six inches.

The water is used to drink by our people, and during six months in the year it is preferred to any well water. I have been on all parts of the pond. The shores are shoal until the water has been drawn off six or seven feet, they then become more steep. The bottom is generally gravelly. There are but a few acres of swamp or peat meadow about it. The pond can be tapped ten feet below the present bottom of the flume. I believe the greatest depth of the pond to be forty feet, when the water is seven feet high in the flume. I believe when the pond has been drawn down this additional ten feet, the area would be about one hundred acres. Two hundred rods from the present outlet of the pond is a convenient place for making a new dam, which would enlarge the area

of the pond about sixty acres. [Mr. Robinson then exhibited on a map the area of the pond, and the character of the land about it, and summed up his estimate by saying that he had no doubt that the pond would fill up twice a year, so as to furnish 3,600,000 gallons a day.]

I procured my water privilege from the owners of the pond by purchase.

Cross-examined by Mr. Warren. I now hold my water rights as tenant at will of the Traders' and American Banks. Bringing the water into Boston would not destroy my works. We get from a third to a half of our water from Long Pond and other sources. All the sources together are not sufficient for our purposes. Within a short time I have put in steam power, which we can use economically. I doubt whether it would be an injury to me to have my water power taken away. I think the pond would fill twice a year,—in the spring and fall. It never did so fill, and I don't think it ever would fill, if the water was drawn off as I drew it.

In answer to a question *by the Committee*, Mr. R. explained that the reason for his doubling the estimate of 1,800,000 gallons a day, as the contents of the pond through the year, was, that he believed that the pond would fill twice in that time.

BENJAMIN ADAMS, (called.) Resides in Boston; was present at the Faneuil Hall meeting. Thought at the first meeting—on calculation—that there were about two hundred people, more or less. I was at all the meetings but one. There were less after the first meeting until about the 22d of October, when there was a larger meeting. I should think over three, perhaps four hundred. Towards the end of November there was a good deal of feeling about the notification of the City Government, which was dated December 27, for the votes of citizens on this question. It dissatisfied the Committee of Twelve, and at the last meeting, they were directed to apply to the Mayor and Aldermen for a change in the questions to be put to the city. It looked to me like taking the business out of the hands of the City Government, where it belonged, and putting it into the hands of the Committee.

I think there is plenty of water in the city. There are several springs on the high lands, on this hill, about the State House. [Mr. Adams, in reply to questions, went into some particulars as to water in different parts of the city.]

Cross-examined by Mr. Warren. I live now in Pemberton Square; I am well supplied. I think there is a want of water in some parts of the city. I think there is a limited

necessity,—not a very pressing necessity. I think there is no necessity for introducing water if people would dig wells, and the city would do what it ought. I have always been of this opinion. I have never thought the city should bring it in. I should be willing to have a private corporation bring it in, and have the city take a quarter or half the interest in it. I should prefer to have them dig the wells I have spoken of. I have been somewhat active in remonstrating against this petition. When I observed the Faneuil Hall meetings, I thought it was time for the people to take care of their own interests. We do employ counsel here. I mean to say that I contribute to this opposition. I have been a witness in opposing these petitions before.

I believe the largest of the meetings at Faneuil Hall, was on Nov. 26. I should think there were not more than four hundred persons there at any time. There could not, in my judgment, have been twelve or fourteen hundred people there. Mr. Robert Ripley, who votes in my ward, has told me that he didn't understand the propositions on which he voted on the subject. Several others have told me that they didn't think that the people understood the propositions.

I did petition the City Government last summer, to prevent the too free use of the public well in State street, below the old State House. I did not urge that this had been done because it had injured my well, but because, among other reasons, I thought it might do so.

Jonathan Robinson, (recalled.) Desired to explain that his calculation was founded on calling the depth of the pond 8 feet. It had since proved that they usually only went to the depth of 7 feet. The calculation must therefore be reduced $\frac{1}{8}$.

SAMUEL T. ARMSTRONG, (called.) Was Chairman of the Committee which investigated this matter in 1839. Have been Mayor of this city—have read the Commissioners' Report of 1844. While I was Mayor the subject of water received my personal attention and I had a survey and reports made. I never have thought that an entire supply of water for the whole city was necessary. I came to the opinion that Spot Pond in 1836 was ample for the then wants of the city. I have seen nothing since to alter my view of the extent of the wants of the city. I own real estate in Washington street—and in the west part of the town, in Beacon street. I have found no want of water on any of these estates.

By Committee. I have had no personal acquaintance with

Long Pond—from reading the report I judged as to the general project of bringing water therefrom that it would be unwise to adopt it and I voted against it.

Cross-examined by Warren. I entertain as confidently as I did in 1836 the opinion that Spot Pond is now sufficient for the supply of the city. In 1836 I made a personal and laborious investigation of the necessity, and of the capacity of that pond.

By *Mr. Brooks*, (of the Citizens' Committee.) I have no estate where the well water answers all the purposes of the tenants. I suppose every house has a cistern for the rain water or aqueduct. Do not know the cost of wells. Never dug a well or had one cleaned out. Don't know the cost of a cistern. Can't tell whether a full supply of water to every part of the house would make it let more readily. I am in no want of tenants.

John P. Thorndike, (called.) Is a mason, have erected a few buildings within the two last years—between 20 and 30—principally near Essex street—(on Edingburgh near Beach street.) Should not be able to answer what would be the price of brick suitable for an aqueduct—for I do not know what kind would be suitable. I suppose that it would need what we call face brick—or pressed brick. Common brick would seem to me wholly insufficient. I think the suitable bricks would come high. From a quarter to a third of a kiln only would answer. The kind I speak of would cost about \$12. It would be necessary to burn the bricks for the express purpose.

I have not recently looked at the estimates of the Commissioners of '44. I haven't examined the project of having an 8 inch thick aqueduct enough to make an opinion. I thought that the gentleman hadn't looked into the matter exactly as I had done. I now hardly have an opinion of the plan. My impression was that the plan and estimate was unsafe. I never saw a building of any kind where there was not some settling, and I should think there would be different degrees of settling by such work as it passed over grounds of different character. My impression would be that such an aqueduct ought to be laid on piles all the way. The dry dock was built on piles. The transportation of the brick from Boston to the line of aqueduct would be an expensive item in its cost.

Cross-examined by Warren. Does not know particularly the size or construction of the city reservoirs in Boston.

James Page, (by Derby.) Has been a mason and builder

in Boston for 40 years. Thinks the statement with regard to bricks by the last witness a very correct one. Should not think that the proposed aqueduct built with an 8 inch wall resting only on earth would be safe. We frequently have to dig some depth to get to earth which we consider solid enough to lay a foundation of a building upon. When this is not done piles are generally driven. I have been a brick and stone mason here 44 years.

By Hubbard. Piles have been used both on new made land and old land.

Cross-examined by Warren. I have never seen an experiment tried of an aqueduct like that recommended by the Commissioners.

Mr. Hubbard at this stage put in the following certificate from the City Clerk:—

“I hereby certify, that it appears by the records of the Mayor and Aldermen, that the vote on the water question in Ward 1, on the 9th of December last was as follows:—

First proposition,	Yeas 586	Nays 2
“ “	“ 585	“ 2
“ “	“ 2	“ 518
“ “	“ 2	“ 562

“I hereby certify, that the whole number of votes for Mayor in the same ward, on the same day was 859, and that the whole number of votes for Mayor in all the wards of the city, on the same day was 10,818.

(Signed) “S. F. McCLEARY, *City Clerk.*”

Robert Ripley, (called.) I am one of the inspectors of of ward 1. [Mr. Derby was then proceeding to ask questions concerning an error in the return of the vote upon which this certificate was founded, when the evidence was objected to; but the counsel for the city agreed to admit that there was an error in the return by which 145 votes “nay” on the 1st and 2d propositions were omitted from the return from that ward.]

Cross-examined. I never told Mr. Adams that I voted ignorantly on this subject, I never told anybody that I voted one way or the other upon it. I may have said that I did not understand it at first.

By the Committee. I did not vote either way upon the question. I have never told any body before whether I voted or not. I told Mr. Adams that I thought the voters didn't understand the propositions.

I have the votes by which I discover the error in the re-

turn from my ward, from the constable of the ward who has kept them since the election.

Mr. Derby put in the following statement from *Mr. R. H. Eddy* :—

“ BOSTON, February 25, 1845.

“ SIR :—In estimating the cost of various systems of works for supplying the City of Boston with water, the progressive increase in the number of tenants, or water takers, through a period of many successive years from the commencement of the distribution of the water, seems to have been either very much overrated, overlooked, or misunderstood by those who have given the subject their attention. The examples of Philadelphia and New York admonish us that some regard should be had to what will be the *probable yearly increase* in the consumption of the water, after the works shall have been completed. New York, with a population three times or more greater than that of Boston, has, thus far, (it being nearly three years since the distribution of the Croton was commenced,) been able to sell water to about 9,000 takers, or at the rate of 3,000 per annum.

“ At the expiration of the year 1819, the City of Philadelphia supplied 3,805 tenants, at a charge of \$21,993.50. In 1822, 4,758, do. at a charge of \$25,485.30. In 1826, the yearly income amounted to \$30,326.75. The supply of the districts then commenced, and at the expiration of the year 1827, the water rents in the city amounted to \$32,521.50, and in the districts to \$3,182. In 1831, the average quantity of water supplied per day to the city and districts, amounted to 2,000,000 gallons; the water rents charged in the city being \$43,682.25, and in the districts to \$26,721.50. In 1835, there were in the city 10,059, and in the districts 5,645 tenants who paid, besides 3,000 who did not pay, or were supplied by free hydrants. These received an average supply of 3,497,648 gallons per day.

The following Table will serve to exhibit the yearly increase in tenants, water-rents, and quantity supplied from December 31, 1819, to December 31, 1843.

	No. of water takers in city, who pay.	No. of water takers in districts who pay.	Tenants who do not pay.	Amount paid by city tenants.	Amount paid by district tenants.	Quantity of water supplied to city and district.	Whole No. of water takers of all kinds.	Population of city and districts.
1819	3,805			\$21,998.50	none	Gallons.		119,325
1820				23,016.50	"			
1821				24,584.50	"			
1822	4,758			25,485.30	"			
1823				26,191.05				
1824				27,292.55				
1825				29,160.50				
1826				30,326.75				
1827				32,521.50				
1828				35,791.50	\$ 3,182.00			
1829				37,881.50	10,378.25			
1830				40,915.00	18,863.29			
1831				43,682.25	22,678.75	2,000,000		167,836
1832					26,721.50			
1833								
1834			2,500			3,400,000	16,895	
1835	10,059	5,645	3,000			3,497,648	18,704	
1836	10,632	6,446	3,000	57,080.50	49,351.87	3,122,664	19,678	
1837						3,456,363	20,462	200,000
1838						3,850,647	21,947	
1839						3,978,357	22,636	
1840						4,034,638	23,482	
1841	12,749	8,779	3,300	66,752.50	74,587.00	4,445,630	24,828	212,000
1842	13,136	9,378	3,300	68,856.25	79,514.00	4,297,480	25,816	
1843	13,439	9,810	3,300	73,393.00	80,215.75	4,422,400	26,849	

From the above it will be seen that Philadelphia, starting at the end of 1819, with 3,805 water takers, was *twelve* years before she obtained a number sufficient to consume 2,000,000 of gallons per day. That it required the succeeding *ten* years to acquire the number sufficient to consume 4,445,630 gallons per day. At the expiration of this time, the population of the city and districts was 212,000. The average *yearly increase* of water takers for the last ten years has been, say 1036, and for the first twelve years, say 657.

The fair inference from the data above given would seem to be, that with the population of Boston, as it is at present, (viz: 100,000,) the rate per annum of her increase for ten years after the distribution of water is commenced, would not amount to more than 1,000 tenants, or water takers; so that before 2,100,000 gallons would be likely to be consumed, from *ten to twelve years* would elapse. Consequently, in 1857, when the population will have reached about 141,000, and according to the estimates of the present Water Commissioners, will consume 4,000,000 gallons per day, but about *one half* that quantity will in all probability be the amount actually necessary. *Twenty* or more years afterwards would probably elapse before a quantity approximating towards 7,000,000 of gallons would be demanded by the population.

If we suppose the present population of the city to be 100,000, the following table will exhibit the increase at the periods therein given, as well as the quantity of water per day required, (according to the estimates of the present Commissioners,) to supply the inhabitants at such times; the ratio of increase being $33\frac{1}{2}$ per cent. each ten years:

Year.	Population.	Gallons per day.
1845	100,000	2,850,000
1847	105,922	3,018,777
1852	122,317	3,486,034
1857	141,229	4,025,026
1867	188,305	5,336,692
1877	251,073	7,155,680

The facts in regard to the consumption of water in Philadelphia, as herein before adduced, do not seem to warrant us in the conclusion that at the expiration of the aforesaid periods, Boston will consume the quantities as above estimated, according to the rate $28\frac{1}{2}$ gallons per individual.

As we have above shown, that in all probability *ten* or *twelve* years must elapse before our city will afford water

takers sufficient to consume 2,100,000 gallons per day, (the amount which the Water Commissioners of 1837, estimated Spot Pond to furnish,) let us now proceed to ascertain what the city, by the adoption of Spot Pond, in preference to Long Pond, will have saved when it shall become necessary to resort to Mystic Pond for a further supply.

It is a notorious fact, that since the Commissioners of 1837 had the subject under consideration, iron has fallen in price at least one cent, and lead two and a half cents per pound. The estimates of the Commissioners were based on three and a half cents for iron, and six and a half cents for lead per pound. The most respectable iron founders are now ready to contract to furnish pipes at two and a half cents, and lead can be had in any quantity at four cents per pound. In iron pipes of twenty-two inches diameter, there would therefore be a saving of \$2.20 per foot since 1837, or, what was estimated then to cost \$9.02, can now be had for \$6.82. As the distribution need not be taken into account, we have only to compare the cost of each kind of work, from the source from whence water is derived, to a supposed reservoir at Beacon Hill.

Cost of aqueduct from Spot Pond to Beacon Hill, through Walnut Tree Hill, and thence through Cambridge and Roxbury to Beacon Hill, according to Report of Commissioners of 1837; \$2.20 being deducted on each foot of main pipe :

Main pipe, 22 in. diameter from Spot Pond to reservoir on Walnut Tree Hill, 16,789 feet, at \$6.82,	\$114,500.98
Rock cutting, near Pond,	1,007.00
Dam &c. at Pond,	1,200.00
Stone Bridge over Medford River,	5,000.00
Reservoir on Walnut Tree Hill,	13,000.00
Main pipe from Walnut Tree Hill to Beacon Hill, 22 in. diam. 39,707 ft. at \$6.82,	270,801.74
Crossing Charles River,	14,000.00
Arches, etc. at the Middlesex Dam Sluices,	8,493.00
Culverts,	1,000.00
Cost of Spot Pond, and land on Walnut Tree Hill, etc.	80,000.00
Contingencies, 10 per cent.	50,900.27
	\$559,902.99

The present Water Commissioners, Messrs. Jackson, Hale and Baldwin, estimate the cost of the brick aqueduct from Long Pond to Beacon Hill, to be	\$1,253,174.67
And 10 per cent. for contingencies,	125,317.46
	\$1,378,492.13

Therefore, if from \$1,378,492,13 (the cost of Long Pond aqueduct) we subtract \$559,902,99 (the cost of one from Spot Pond,) there remains \$818,589,14. In about eleven years or by the time it would be necessary to resort to Mystic Pond or some other source for water, the sum of \$818,589,14—at compound interest will have doubled, or become \$1,637,178,28, or *more than enough by \$258,686,15, to build the whole works from Long Pond.*

By taking a more direct route for the pipe from Walnut Tree Hill Reservoir, or laying it through Charlestown, and crossing Charles River at or near the Charles River Bridge, upwards of \$100,000 would be saved in the expense of introducing the waters of Spot Pond, which could be effected for about \$450,000; thereby saving to the city in eleven or twelve years the enormous sum of \$1,856,984,26; or \$478,492,13 more than the estimate of the present Commissioners to build the aqueduct from Long Pond.

We will next examine the cost of steam works to supply 2,500,000 gallons per day, the quantity which the city may require at the expiration of another ten years or say in 1867. Her population would then be 188,305. That of Philadelphia is now about 230,000 and it consumes about 4,600,000 gallons per day. Therefore, it will be perceived that we allow Boston in 1867 with a population 42,000 less than that of Philadelphia *now* to consume the same amount of water. Although a spirit of liberality governs us in making such an allowance, we do not concede that Boston will actually consume so much.

Estimate of cost of Steam Works at Mystic Pond capable of supplying 2,500,000 gallons per day.

Dam at Pond,	\$2,000,00
Canal, Gates and Strainer,	2,000,00
Main pipe 18 inch drain from Pond to Reservoir on Walnut Tree Hill—8,250 feet, say,	50,000,00
Main pipe from Reservoir to Beacon Hill,	270,801,74
Two Steam Engines and pumps each capable of delivering 2,500,000 gallons per day,	70,000,00
Buildings for do.,	20,000,00

Water Rights,	20,000,00
Contingencies 10 per cent.,	43,480,17
	<hr/>
	\$478,281,91

For the ten years the population would average in its consumption 1,375,000 gallons of water per day. At the rate of duty of an engine assumed by the Commissioners of 1837 (which is too low as subsequent experiments have proved, a ratio of 90,000,000 raised one foot by one bushel of coal having been effected by the engine of the East London Water Company—working through a year) viz: 60,000,000 pounds raised one foot by a bushel of coal. 1,375,000 gallons will require 27,65 bushels of coal per day, or 284 chaldrons per year, to raise the water 100 feet; the engine being supposed to be working against the pressure of a column of water 150 feet in height.

Coal, 284 chaldrons at \$7,00	\$1,988,00
Superintendent,	1,000,00
Engineers and Firemen,	2,738,00
Wear, tear, &c., Insurance,	3,000,00
	<hr/>
	\$8,726,00

Capital at 6 per cent. to produce \$8,726,00 per year,	\$145,433,33
Add cost of Steam Works,	478,281,91
	<hr/>
	\$623,715,24

Deducting \$623,715,24 from \$1,637,178,28, (the amount before proved to have been saved by the city by adopting the Spot Pond project in preference to that of Long Pond,) and we have \$1,013,463,04; which, before further additions to the steam works would be requisite, would amount to about *two millions* of dollars.

We might carry the calculation farther and thus exhibit at the expiration of the next decennial period a saving of over \$3,000,000, but we do not deem it necessary.

If, therefore, as many good judges have asserted, the proposed aqueduct from Long Pond cannot be constructed for the sum as estimated by the present Commissioners, but would cost nearer double their estimates, what an *enormous* loss must accrue to our city by the adoption of such a project in preference to the one recommended by the Commissioners of 1837.

The cost of iron pipes and steam engines can be arrived at

with great certainty ; whereas, *structures of masonry* for the conveyance of water, have generally, when completed, cost *three* times their original estimates.

The daily working of the Cornwall Engines and those of the East London Water Works Company affords sure and certain data upon which to base our calculations of the cost of Steam Works for elevating water. It needs no great stretch of philosophical reasoning to demonstrate that what can be done in England by the Steam Engine, so far as the raising of water is concerned, can be effected in Massachusetts.

Aqueducts of masonry are continually requiring expensive repairs ; whereas, conduits of iron are permanent, and comparatively speaking indestructible. Improvements in steam engines are constantly being made by which their consumption of fuel is lessened and their cost diminished. Iron pipes from year to year are becoming cheaper. Water flows through them uncontaminated ; whereas, in an aqueduct of masonry it is subject to the absorption of lime, particularly if the common American hydraulic lime is employed in its construction. There is, therefore, every reason for preferring an iron aqueduct to one of stone or brick laid in cement.

The above statements of cost of the various kinds of water works, are based principally on the Reports of the Commissioners of 1837 and 1844. So far as those taken from the report of 1837 exhibit the cost of iron pipes, lead and coal, they have been reduced to the present market prices of such articles. I will, however, by no means concede them to be the lowest prices at which such can be contracted for in large amounts, nor will I concede a duty of 60,000,000 pounds raised one foot by the consumption of one bushel of coal (94 lbs.) to be the maximum average duty of an engine, for the engine of the London Water Works Company, at Old Ford—has, *throughout the year*, performed an average duty of 90,000,000 lbs. raised one foot by 94 lbs. of coal.

I believe an engine can be constructed whose daily performance will average 100,000,000 lbs. raised one foot by 94 lbs of coal. Neither do I wish to be understood as believing the route of conduits from Spot and Mystic Ponds—as recommended by the Commissioners of 1837, to be that which good judgment would decide to be the best. On the contrary, I think a far better and cheaper route can be selected, one, which, when its cost is compared with that of the Long Pond project, will be much more favorable, as regards a saving of expenditure, than the one recommended by the Commissioners of 1837.

My object has been, not to "split hairs," but to exhibit a comparison of the Long Pond project in its *best*, with that of Spot and Mystic Ponds in its *worst* light, and in conclusion I cannot but think that were our city to embark in the enterprise of introducing water from Long Pond, an immense debt must be entailed upon ourselves and posterity from which there appears to be no prospect of relief, through any future income to be derived from the sale of the water.

"Yours respectfully, "R. H. EDDY."

"WM. J. HUBBARD, Esq."

The Committee after reading this document adjourned to meet on Thursday afternoon.

ELEVENTH SESSION, *Thursday, February 20th, 1845.*

Mr. Bartlett, (for the remonstrants.) Read the remonstrance of certain inhabitants of Lowell against the petition of the city, signed by A. L. Brooks, and 190 others—and made a brief argument to show its connection with the general question—taking the ground that the injury to water rights which would be effected by taking water for the city from Long Pond, had not been sufficiently estimated by the Committee, and that the injuries to existing rights which such a course would produce which would not be remunerated by legal damages ought to be especially guarded against by the Legislature.

Mr. Bartlett added that he wished to show the value of the water power investments, dependent upon the waters of the Concord River. There were the Whipple Powder Mills

Valued at	\$80,000
Massic Falls Mills,	40,000
Fall on East side, near the mouth of Concord River, owned by Middlesex Co. and others,	100,000

Making	\$220,000
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He stated that there was a population then of between 5 and 600 people dependent upon these works.

O. M. Whipple and Thomas Hopkinson testified in detail, pointing to a plan of Lowell and its vicinity, to ten general facts in this statement, stating that if the water power were so reduced as to stop the works for two or three months in the year, the works would be abandoned, or conducted solely by steam power.

MR. CALEB EDDY, (*called.*) Cannot tell how large a portion of the supply of Concord River is from Long Pond.

JOHN A. KNOWLES, of *Lowell*, (*called.*) Supposed the

value of the works at "Belvidere" to be about \$100,000. The population dependant upon these works is from 500 to 1000. Cannot tell the value of Mr. Whipple's property. Have heard it estimated from \$50 to \$100,000. Don't know what it is taxed at. Wm. Richmond has some property at the Massic mills, valued at about \$25,000.

Cross-examined by Mr. Warren. I do not know that bringing the water from Long Pond would have any effect upon these mills.

Mr. *Bartlett* now proposed to put in some testimony to show how the petitions for this object were got up. He asked Mr. Henry Williams of Boston, who was present, if the petition of Walter Channing and others, were in his hand writing, and Mr. Williams not being put upon the stand or sworn, said it was. In the absence of other witnesses, however, he first introduced

ENOCH BALDWIN—who had had some knowledge of Neponset river. Supposed it would produce a sufficient supply of water for the City of Boston—as much as Charles river in a dry time—supposed it to be good water—knew it as agent of the mills there. The distance from the city is from five to six miles. Is president of the Shoe and Leather Dealers' Bank.

Examined by the Committee. There are a few hills between here and the Neponset, and then there is a general descent to the town.

Cross-examined by Mr. Warren. There are a great many manufacturing establishments on the river. I have made now no calculations as to the amount of the water.

Direct resumed. The lowest dam on the Neponset is at tide water, the water there being used only at low water, and there are mills all the way up—the whole water-power of the stream is used.

PEREZ GILL. *By Mr. Bartlett.* I did not sign a petition to the city to bring in water from Long Pond.

By Mr. Derby. I do not recollect whether I signed a petition for the use of Faneuil Hall for meetings concerning this project. I voted for the Long Pond project. I am not in favor of it now.

ALVAH CROCKER. Have given but very little attention to the introduction of water into this city.

The elevation of Magog Pond will probably not vary much from 200 feet. It is from 4 to 500 acres in size. It is estimated by people in the vicinity at about 700 acres. It lies in Acton, a portion of it in Middleton, about 23 miles from the city. The water is very clear and cold; its shores are rocky and sandy; the whole country in its vicinity is of that character; the soil hard. During the dryest portion of the year people are in

the habit of going to the mill there to get their grain ground. Mr. Weatherbee of the Fitchburg rail road, is able to state more accurately than I as to these facts. The pond may be raised ten feet without great expense. There are three other ponds, Long, Fort and Grass ponds, in its immediate vicinity. Long Pond contains about 100 acres, Fort pond about as much. There are no expensive establishments upon any of the outlets. The discharge of Magog, Long and Fort ponds enter into Concord river a little above Concord. Stony Brook's elevation is 118 to 120 feet. There is a considerable fall from Sandy pond to Stony brook. This is in Weston. It is not over 11 miles from the city. From 11 to 14 miles, according to the part of the brook whence you take the water. There is a large mill there, which is run very constantly in the summer. There are several smaller mills above. The value of the establishments is not great. The volume of water is enough to drive six or seven hundred cotton spindles at a head of 15 feet. The basin is larger than Long pond I should think.

I have seen Sandy pond only once. The other ponds have very pure water. A place for a reservoir might, I should think, be found in West Cambridge, and I saw a good basin on Prospect hill in Waltham.

I have been connected somewhat with mills. I should feel no safety in carrying water without a very permanent foundation. In the construction of a dam at Crockersville, the abutment being 100 feet long we sought for a ledge and thought that we must find it for a foundation. If you should take a single brick for the width of your dam, there would be great danger of finding a single defective brick, which would let out the water. The thickness of the culverts under the Fitchburg rail road is from $2\frac{1}{2}$ to 5 feet.

I am perfectly well acquainted with the Nashua river. I live on its banks. The wood on its banks has been very materially diminished of late years; below Fitchburg 50 per cent. in last 20 years. This has materially diminished water in the river. I should think it had reduced the stream very nearly an eighth at those points. For instance at Leominster. We have been at great expense in establishing reservoirs.

I have not a doubt but that more water and more abundant may be found northwest of the city than elsewhere. At least a quarter more water is discharged from the ponds near Acton than from Long pond. Sandy pond in Groton, a very pure pond. Then there are the ponds in Westford and Littleton, Fort Pond in Littleton and Spectacle pond. Northwest of the city there is a constant succession of ponds—and the soil there is qualified to render the water pure.

Cross-examined by Mr. Warren. Magog Pond empties into Concord river or Elzabet river rather, but it is the same thing. I should not be willing to give an opinion as to the quantity of water discharged by it. Could not say how many millions of gallons a day it is. Do not like to form an opinion so hastily. I should rather not give an opinion without looking. A very constant but not very large stream goes from the pond into Concord river. The river is not so dependant on the pond as it would be if it were raised 10 feet. A considerable supply might be raised in that way. The country is very clear about there. The waters from Sandy pond go to Stony brook and thence to Charles river. There are no ponds so near the city that I know of, that I think so favorably of.

SAMUEL M. FELTON, called. Am an engineer. Know Stony brook, it throws out a considerable discharge—in the spring very abundant. It is quite a rapid stream. There are several falls on it. There are two falls occupied by mills—I never knew it dry. I should judge from the map, though I do not know that that is a reliable indication, that the basin of Stony brook is larger than that of Long pond. In building culverts we always try to get a hard foundation, when we cannot we take great precautions to make solid foundations. These culverts are sometimes carried away. We have no walls less than three feet thick for our culverts. We prepare the foundation by throwing in stones or driving piles.

Cross-examined by Mr. Warren. There are four mills on Stony brook. There is a machine shop and a cotton factory on it, and a saw mill and an old mill. The elevation at Jenkins's factory is 140 or 150 feet. There is not much power there. At this season there would be an abundant power there. Sibley & Coolidge's factory is about a mile from Charles river. The brook has several branches.

Direct resumed by Mr. Derby. I have no doubt a good deal of surplus water might be saved by dams. Sandy pond is very pure water. The soil is sandy and gravelly. The discharge of Stony brook at this season, I should judge to be 30 or 40 cubic feet per second, to speak within bounds.

By Mr. Williams. I have only measured it by my eye.

COL. THOMAS C. AMORY, (sworn.) I am President of one of the insurance offices; was head of the fire department some years ago. The annual expenses of the fire department would not be diminished that I know of by the introduction of water. I think it would operate variously on the rates of fire insurance. On stores which have not valuable finishing, the abundance of water would diminish the rates, or at any rate keep them as they are. But where there are valuable goods the

abundance of water might increase the risk. Do not know that it would increase it, but think it would not diminish it. The water loss on goods is frequently much greater than the loss by fire. The cold in winter might freeze the hydrants and so prevent them being as useful as reservoirs. I was at the head of the fire department about six years.

Cross-examined by Mr. Warren. I left the department in 1835. Think the greater flow of water would not be beneficial to a stock of goods, though it might be to stores. I generally have been to all the fires in the city of late years. I was at the Dover street fire. It was a very peculiar one, such as you seldom see anywhere. A great part of the time there was an abundance of water, but during a part of it there was not.

Mr. WHIPPLE was recalled and stated that he owned the Magog pond in Acton.

The Committee then adjourned to meet next day.

On the TWELFTH DAY, *Friday, February 21*, the Committee met, but for want of a quorum, adjourned to Tuesday, the 25th.

THIRTEENTH SESSION. *Tuesday, February 25, 1845.*

CALEB EDDY, recalled. Nearly every summer it has been necessary to stop the mills on the Concord river, that the canal might take all the water of the river.

Cross-examined by Mr. Fletcher. The Middlesex Canal owns the mills at Billerica, which are now reated out. Faulkner and others own two rights there, subject to a condition that when the water is reduced to a certain level the gates shall be shut. Our mills do not run throughout the whole season.

Mr. WHIPPLE recalled. I bought Magog pond with a view to have an additional supply of water if Long pond should be taken by the city. We now use it for a reservoir and additional supply in the dry season. The supply is small, and we have felt in doubt whether we could increase the supply by raising the dam; whether the water would rise.

Mr. *B. R. Curtis*, in behalf of the Middlesex Canal, said that he was instructed not to oppose the petition of the city, provided the act asked for should contain provisions for suitable compensation to the canal proprietors; and to make the position of the canal clear, and with some hope of effecting a compromise, he had some days since submitted to the counsel for the city, the following propositions:—

“Messrs. John Pickering, Richard Fletcher, Charles H. Warren, Counsel for City, &c.

“Gentlemen—In the matter of the petition of the City of

Boston, now in hearing before a Committee of the Legislature, it is my intention in behalf of the Proprietors of the Middlesex Canal, to ask the Committee to insert in the bill, if any is reported, provisions to the effect following :—

“ 1st—To authorize the proprietors of the canal to discontinue the canal and make sale of their property.

“ 2d—That the city shall pay to the proprietors of the canal such a sum for the right of diverting the waters of Concord river now vested in the canal, as Commissioners shall find to be its just value.

“ 3d—That the water shall be excluded from the canal.

“ 4th—That if any claim for damages shall be made by any mill owner on this city, by reason of the diversion of the waters of Long Pond, &c. the jury, &c. shall take into the account the benefit received by such mill owner by reason of the exclusion of the water from the canal.

“ These I believe embrace the substance of the provisions which are desired. As I shall not have the opportunity to reply to you, and no opening has been made on your part respecting these provisions, it would seem fit that you should state to me what points, if any, you shall make in opposition to the request of the proprietors of the canal.”

Mr. Curtis had received no answer to these propositions, and he therefore felt compelled to urge them upon the Committee. He made no complaint of having received no answer, as he understood that the condition of the City Government had prevented it from instructing counsel upon the point of the required concession.

He urged that it was impossible to assess in any gross sum, the damages which the canal would sustain by reason of the diversion of the water asked for. In the first place, it was left uncertain what amount of water the city would draw. The seven millions of gallons a day, estimated by the Committee, was only the ultimate want of the city, and it was mere matter of guess how much would be wanted immediately, and how soon this whole amount would be wanted. Then there were certain seasons of the year when this amount could be taken without injury to the canal, while there were others at which it would be highly detrimental. The amount of business of the canal at the time when the water was diverted from it, would also come into the calculation of damages.

The canal was also entitled to the benefit which might accrue to it from improvements in canal navigation, which may hereafter be made. This was another element which would make it impossible for any tribunal to calculate the indirect damages to the canal from a diversion of its water. Unless it were intended to

fix a gross sum, which the canal should be compelled to take, it would be necessary to have an annual assessment of damages which would be requiring an annual lawsuit.

Mr. Curtis premised that the position of the two parties were such, with regard to this subject, that the city could not complain of the request of the canal.

First. Because the city asked for a new power. In no instance had our Legislature granted power to divert water, except in the case where the State provided for the supply of its own hospital at Worcester.* He believed that while power to take land and other property had been so often granted, that this distinction in the case of water was not a casual one, but arose from the large indirect damages that would result from the diversion of streams of water. He thought that the Commonwealth would be slow to change this policy. It would be impossible to see to what extent the policy so changed might reach.

Secondly. This property,—so he considered the right to divert the water,—was already held for public uses. The canal now held these waters as a highway for the transportation of passengers and merchandise. If the Legislature should give the right to divert these waters to another corporation, it would be a transfer of the right to take this property from one public use to another public use. The right of the Legislature to do this had been doubted. The better opinion was doubtless now that it had that right, but it was the universal opinion that an extreme case of public exigency must be made out. And to this point Mr. C. cited the opinion (23 Pickering's Reports, 393) in the case of the Roxbury Water Company *vs.* Boston and Worcester Railroad.

Mr. Curtis urged that it was the duty of the Legislature to use extreme caution to prevent the waste of private property by powers granted to a corporation. In this case such waste would be prevented by the adoption of the propositions of the canal. It was in evidence that at the season when the canal was most busy it required all the water; but if an arrangement could be made, by which the mills could be supported by closing the canal, it was the duty of the Legislature to require this. If it were true that the amount of filtration and evaporation of a canal is 50 cubic feet per mile per day—this on twenty-seven miles would be seven or eight million gallons per day, which, with the amount used for lockage &c., would more than compensate the mill-owners for the water taken by the city, if the canal should be closed, so that this waste could not accrue. To compensate the canal proprietors for shutting out the water from the canal, would

*Mr. Curtis subsequently corrected this statement by referring to the incorporation of the Hydraulic Company in 1836.

therefore be a simple and satisfactory way of indemnifying the mill-owners, and saving the city any farther litigation upon the subject.

Mr. Curtis now urged that as he had not, in reply to his propositions received from the counsel to the city, the points of fact or law which they should raise in objection to these propositions, it was to be taken that the city had no objection.

[Mr. Warren, in behalf of the city, remarked that he was sorry if there had been any misunderstanding with regard to these propositions; that he considered the demand for a specification of objections as at least an unusual one. That the city would contend that the injury to the canal would not be essential, and that whatever it might be, it could be supplied from other sources; that he did not consider that the counsel for the canal was entitled to have been informed of this heretofore, but that if it operated as a surprise upon him, all would be desirous that he should have time to prepare to meet it either by evidence or argument.]

Mr. Pickering added an explanation that he supposed that the request for a reply, was only for the objections which would be made to the proposition of the proprietors, and not for those to the grounds on which they rested; and that he had informed the counsel that from the imperfect organization of the City Government at that time, he had not been able to enter upon any agreement as to what would or would not be consented to as a part of the charter. After he had stated that he was thus unable to answer the proposition, he had considered that matters stood as if no proposition had been made.

Mr. Curtis said, that reserving the right to introduce evidence hereafter, should it be found necessary, he would briefly conclude what he had to say.]

Mr. Curtis resumed. The city came here to do an act which would undoubtedly affect the canal property to some extent. They ought to have been prepared to show how they would meet this injury. He should therefore leave his argument upon the legal objections until after the city had further developed its case. He should then only state the grounds upon which the proprietors of the canal stood.

The whole cost of the canal, reckoning interest until

1819, when dividends were first made, was	\$1,112,797
The cost of each share was, at that time,	1,455
The dividends last year were on each share,	10

The shares were very generally held by the original proprietors and their descendants. The canal lost about one-third of its receipts by the Lowell Railroad, and had been still further affected by the Nashua Railroad.

There was also a dividend of \$60 last year, which was the

proceeds of property sold, and did not accrue from the earnings of the canal, as such.

Mr. Curtis said he had a few words to say on behalf of the owners of property in East Boston. Their remonstrance set forth that while it was not proposed to carry the water to East Boston, their property would be taxed to pay a proportion of the expense, and that injustice would thus be done. Mr. Curtis urged that all property in East Boston would be forever deprived of any benefit from this work directly, and he could see but two ways in which they could be indirectly benefited. One of these was, that they are interested in the public property of the city, whose security from fire, it was said, would be increased; and the other, that the expense of the fire department was expected to be reduced. These benefits would not be sufficient to warrant the inhabitants of East Boston in incurring their share of the large expense proposed. But farther, if the fire department were reduced, it would only be as efficient as now, where the supply of water existed, and on the other side of the channel, insurance would rise rather than fall. There were now 4,500 inhabitants at East Boston. It was estimated that there were 1,200 dwelling houses, that 300 buildings were erected last year, and that 150 were now erecting. The valuation of real estate, 1844, was \$1,317,000. Several extensive factories and mills, which would much increase the business and population of East Boston, were now building. From these statements it would be apparent that this was a case of much magnitude, and it would be no more reasonable to tax East Boston, than it would to tax Chelsea, for the same purpose, if this petition came from the County of Suffolk. It might be as well urged that this project was not one forming a part of the duty of the city, as that it would not be a part of the duty of the county, the burden of which would of course have to be shared by Chelsea.

It had been urged that this objection was like that of a person without children objecting to pay a school tax. But that was an accidental, and not a permanent and local objection, and the whole community derived the benefit of the school tax from the greater civilization and good order of the community. It had also been suggested that if East Boston was dissatisfied it might be set off. But the inhabitants of East Boston had a right to remain citizens of Boston, and to tell them they might go, was adding an insult to their injury. They might not be told that if they chose to live where the water could not come, they must take the burden of their situation; for they had a right to protect themselves against those burdens when they were extraordinary. He thought this a case in which the Legislature should interfere to prevent injustice, because it was of such magnitude, and of increasing magnitude.

If the interest on the cost of this work was really to be paid by the water rents, there could be no harm in absolving East Boston from its share of the expense. Those whom Mr. Curtis represented, had not much confidence that this would be the case.

The New York Legislature limited the "water district," on the part of the city, to be taxed for this purpose, to those parts in which the pipes were laid down. (New York act of 1843, ch. 241.) So in Massachusetts, (act of 1844, ch. —,) providing for village fire departments, this principle had been adopted, that those who have the benefit shall bear the burden of an enterprise.

Mr. Curtis here rested his case for the present, saying that after the city should have put in its evidence with regard to the diversion of water from the Middlesex Canal, he should offer to put in evidence to establish his views of that subject, and hoped that the Committee would enable him to introduce it.

The Committee then adjourned to meet the next day at 9 A. M.

FOURTEENTH SESSION. *Wednesday, February 26th, 1845.*

Judge Warren stated that he should proceed to introduce the evidence for the petitioners without any further introductory remarks, as its application would be easily made after the extended explanations already made.

First, Mr. W. read the petition of *Benjamin Adams* and others in 1842 for the closing of the pump in State street, on account of its drawing the water from the wells in Pemberton square; and the order upon it reported by *Larra Crane*, another witness, August 1st, 1842.

He next read a certificate signed by a number of the leading masons and builders of the city expressing confidence in the estimate of the Commissioners for the cost of the brick work of the aqueduct, and their willingness to contract for it at the estimated price.

He then called a witness, somewhat out of the order he had intended, because that gentleman wished to leave town.

MARTIN BRIMMER, (*sworn.*) I was Mayor of the city for the last two years—was a member of the City Government in 1838—as Alderman. My attention has been called to this subject of introducing water, as an Alderman in 1838, as a member of the House of Representatives in 1837, '38, and '39.

Last autumn I was invited by a party of gentlemen to go to Spot Pond for the purpose of examining it. It was in September. A number of gentlemen went. We were taken in a boat and carried to the place whence it was understood the water

would be drawn if taken from the pond and also to other parts of the pond. The water was beautiful as is the pond itself. I inquired where the outlet of the pond was, and asked Mr. Odiorne who was with us for how long a season the water did not run out of the pond. He said he believed that summer it had been about six weeks ; and referred me to a man who lived in the house then, who he said would know better. This man said that there had been between six or seven weeks when no water run out of the pond. We then went down to examine the outlet. It is a sluice way in an embankment of from seven to eight feet high. I measured the sluice way and found that it was two feet by one. It was so constructed that it could be closed by a gate. The water was then running out about five inches above the sill of the sluice way.

The eastern and south-eastern parts of the pond are deep. The western part is shallow. It was thought not to be deep enough to float the boat we were in. My opinion is that as a source of supply for Boston, Spot Pond is totally inadequate, and not to be depended upon at all seasons of the year. My opinion was, from this examination, that it is supplied by rain and snow water and not by springs. I do not know that any water flows into it except from one small source on the northern side. I suppose it not to be supplied by springs because its water runs so low in the Summer time.

As to the necessity of a further supply of water in the city ;— I suppose that around the three hills there is a good supply of water for those who reside there, such as it is. It is in general however, hard water. The wells are required to be very deep. On the easterly side of Beacon Hill there is constant complaint of the failure of wells from the effect of new ones which have been dug. There is a constant war going on under ground and many wells have to be deepened from time to time. Last summer we were obliged to deepen two wells in the cellar of the court house. These three hills are an exception to the general necessity in the city. On the lower level water is very scarce. On the Mill Pond, South Cove and the Neck there is hardly any water to be obtained except by Artesian wells, and water is wanted as well for drinking as for washing and other domestic purposes.

The fire department costs the city about \$40,000 a year. A small reservoir costs about \$300 and a large one from \$800 to 1000. The water in these is stagnant, and that in the salt water reservoirs is so filthy that when thrown upon goods it destroys them nearly as certainly as fire would do. It is also destructive to the clothes of the firemen, so that we prefer the fresh

water reservoirs, when they can be obtained. There are fifty-six reservoirs in the city, holding from 3 to 400 hogsheads each. We have nevertheless been much alarmed at several times for the want of water and it is my opinion that we have not the means to extinguish a fire of any magnitude, if it should occur at a place or time when the tide water would not be available. Witness then described the fire in Dover street the preceding year, at which the Franklin school-house was consumed. The great want at that time was of water. It was necessary to bring it through three or four engines which much diminished the force that the department could bring to bear directly upon the fire, and disabled it although engines were brought into town from as far as Waltham. If there had been then as there are now houses on the eastern side of Dover street, there would have been no means of stopping the fire short of South Cove. In my opinion we have no means of stopping a serious fire that should break out in the centre of the city, or even nearer the water at a time when the tide is down.

At the south part of the town we have nine mains from the Jamaica Pond aqueduct to be used in case of fire. There are mains also in other parts of the city, but they are never depended upon south of Boylston street.

At the fire by which the crockery store in School street was destroyed some time ago there was a great want of water, and I was told that some of the nearest reservoirs were exhausted. I do not now remember the particulars.

Wells are built for \$1,25 a foot for the digging and stoning, the owner supplying the materials. My reservoir, is a double one and more expensive than usual and would not be a fair criterion. It cost a good deal of money. I do not recollect the exact sum. I have no doubt that a great mass of the people of Boston wish to have water brought into the city, they paying for its use. I was not accessory to any unfairness in producing the popular vote. I don't know that any body was and I don't believe there was any.

I have no doubt that water at a fair price would be paid for. I think this because it would be for the people's interest, and cheaper than keeping their pumps in repair. At 6 or 8 dollars a year I believe it would be for their interest to take it. It would undoubtedly be taken in the part of the city which has been called the supplied district. I should be willing to pay 20 dollars a year for it if it could not be got for less—although I have now every convenience for the supply of water that the city now affords. I presided at several meetings at Faneuil Hall on this subject. I saw no attempt to overawe me. This could hardly have been, as seven-eighths of the people there were on my side.

At the last meeting, I should think there were 800 or a 1000 present, possibly 1200. This was the meeting after the Commissioners reported. There were several meetings adjourned from time to time, awaiting the report of the Commissioners. The meeting in the morning was very small, it having been announced in the papers that it would only meet to adjourn. I know of no unfairness at these meetings, and no one interfered with my duties as chairman.

By Committee. South Boston is well supplied with water for domestic purposes, but there would be great danger there in case of fire. There is no dependance there in such a case, but three small reservoirs, and the salt water from the river and bay.

Direct resumed. I think the fire department is now too small. If a supply of water is not introduced from out of the city it must be increased. If this should be the case it might be reduced ; perhaps from 14 engines to 12.

There are many persons who have a sufficient supply of well water who are obliged to purchase soft water in the summer time. Large quantities were brought into the city from Charlestown last summer and sold at high prices.

The reason why the report of 1844 was printed and circulated, according to the order of the City Government before that of 1837 was, that the Water Committee having been directed to report in print, the former report was already in type, and upon the new order being passed the type was kept standing, and the 7 or 8000 copies ordered were struck off immediately. The report of 1837 was 95 pages long, and it took some time to set it up and prepare it for delivery—but there was no unnecessary delay, and I frequently called upon the printer to hasten it. It has been distributed long before now.

Cross-examined by Mr. Bartlett. I have frequently visited Spot Pond at other times than that of my visit in last September. My opinion as to the way in which it is supplied arose from the fact that the water is so low there in summer. I often drive in that direction in summer time, and have observed that it was very low at that season. I inquired of the man who lived in the house then and kept boats there, if there were any springs, and his answers were not satisfactory. There had been heavy rains before my visit there in September. I was invited to go there on that occasion by the trustees, who I suppose held a mortgage on the pond—several gentlemen went with us. There were Mr. Hayward, the Engineer, Mr. Darracott, Mr. P. W. Chandler, the President of the Common Council, Mr. Buckingham, of the Courier, Mr. R. H. Eddy, and perhaps half a dozen others.

Mr. Brimmer was then cross-examined with regard to the existing supply of water in the city. The circumstances of the Dover street fire, and the meetings at Faneuil Hall, but no

new facts were elicited. With regard to a statement which had been made by a witness before the Committee that the nominations of a Committee at one of these meetings had been furnished him by other persons, he stated that he had made those nominations himself.

The Committee then adjourned to meet the next morning.

FIFTEENTH SESSION. *Thursday, February 27, 1845.*

Continuing the rebutting evidence for the city, Mr. Warren put in a table showing the amount of tax raised in each ward of the city. This showed that the greatest amount of wealth was in the wards 4 and 7.

The whole city tax for last year was \$744,210.

Of this ward 4 paid	-	-	-	-	-	\$133,000
“ 7 “	-	-	-	-	-	118,847

These two wards together paying - - - \$251,847 yet these wards were strongly in favor of the introduction of water, according to the present petition; for it would be seen by the certified copy of votes already in the case that they voted:

	Ward 4.		Ward 7.	
	Yeas.	Nays.	Yeas.	Nays.
On the question of bringing water from Long Pond,	586	278	538	247
On the question of leaving the matter to the further action of the City Council,	149	709	203	540

Mr. Warren then put in a letter from Zebedee Cook, President of the United States Insurance Company in New York, to Joseph Bradlee, Esq., dated January 9, 1845, as to the effect of the introduction of the Croton water on the rates of insurance in that city. The rates had fallen 40 per cent. within a few years, of which in his opinion 30 per cent. was to be attributed to the introduction of the water, and 10 per cent. to competition.

Also, a letter from James A. Coffin, of New York, President of the Croton Aqueduct, to L. Norcross, Esq., dated February 14, 1845, speaking of the advantages which had accrued from that work, and stating that he believed that the opinion of the citizens was that they would not now be without it even if the debt that it had cost were trebled.

Mr. *Warren* then read several of the remonstrances which had been presented to the Legislature, when the city petitioned for leave to introduce water from Spot Pond in 1839, (to show that objections of the same character were raised then as now, although the remonstrants, now that the city wished to take Long Pond, urged that it ought to go to Spot Pond or some other source,) viz :

The remonstrance of the town of *Stoneham*, representing that it contained valuable mills that would be ruined by the execution of the project, that it would cause great damage to the lands adjoining, and that the Legislature ought not to jeopardize for such a purpose the property and rights of individuals and towns. A similar petition from a Committee of the town of *Malden*; from *Abel Baldwin* and others of *Stoneham*; from *William Barrett's* heirs; from *Thomas Gould* and others, and from the town of *Medford*, referring to the damage expected from damming up the outlet of *Mystic Pond*.

THOMAS B. CURTIS was then called. Has been in the Common Council for four years. My attention has been thus called officially to the subject of introducing a foreign supply of water into the city. My opinion is that there is a very urgent want for such a supply, both for domestic purposes and as a protection against fire. It is also needed as a supply for the shipping. There are about 7000 vessels cleared at our custom house annually for the foreign and coastwise trade, each of which is obliged to have a certain amount of water. I have obtained from the custom house, the following statement of clearances in 1844 :—

	FOREIGN.	COASTWISE.
Ships and Barques, - - -	295	323
Brigs, - - - - -	530	803
Schooners, - - - - -	1154	3774
Sloops, - - - - -	20	109
Galliot, - - - - -	1	00
	2000	5009

This gives 7009 vessels in all. If we suppose the cost of water for each to be at the rate of \$5 a vessel, which is a small average, it would make a cost of \$35,000 per annum. The water is now brought from the adjoining towns and from South Boston. If there were an abundant supply they could all obtain it from jets at the wharves and quays. The price varies from 50 cents to 75 cents a hogshead, and have paid \$45 for watering a single vessel.

I have lived nearly fifty years in Boston, and have visited every part of it frequently, and of late with particular attention to this subject. I think that this want of water is a pressing want. I myself am as well supplied as anybody, I have a well twenty feet deep, of which the water is pleasant to the taste and appears pure to the eye. I have had it analysed by a chemist, and the result was such that now I do not like to drink it. [Mr. Curtis here gave some amusing anecdotes of some tests of city water considered the purest, had before a previous Legislative

Committee which had shown them to contain animal, mineral and vegetable matter. He also described a rain water cistern which had been made to leak by a series of "pin holes" eaten through its metallic lining by the chemical impurities of the water.]

Examined by the Committee. I do not know of any well water in the city which will wash. I have heard that there are two or three wells that furnish water which will.

Direct resumed. Mr. Hayes the chemist, who made the former analyses, said that he did not know of a single well of good water in Boston. I am interested in some property at the North End. From that 100 to 150 persons have to go a long distance to get water. There is a well in Bartlett street to which they go, which the proprietor has dug to the depth of 90 feet, and from which he sells the water. It is a well in a small yard, surrounded by a box which is kept locked, so that no one may get water from it without paying for it—and even this sometimes fails.

By the Committee. I have no question that the water if introduced would be used in all new houses built in any part of the city, because the aqueduct arrangements are cheaper than cisterns, wells and pumps.

Direct resumed. I have known many instances of the "underground war" caused by a new well sunk to a greater depth than the older ones in the neighborhood, exhausting them. [Witness went into the particulars of a case of this kind with regard to Parker & Whitney's well in Court square.] I reside in ward 4. When the water vote was taken I was at the ward room from the opening to the close of the polls. Saw no unfairness with regard to the vote. There were people present on both sides urging the voters, but there was perfect openness and I believe the citizens voted as understandingly as on any other question. According to my knowledge, the desire for the introduction of water runs through all classes of people, from richest to poorest, without any distinction from lines of property. The objection seemed to come from a small number of gentlemen, who were however exceedingly active. They are the same now as were formerly active against introducing water from Spot Pond. A few have died or resigned, (laughter) but they are in general the same, and employ the same counsel.

By the Committee. I have no question that owners of real estate would procure this water for their houses, because if it were supplied for 5 or 6 dollars annually, it would be cheaper than to keep their pumps and cisterns in order. The Croton engineers considered the saving in insurance by the structure of that work, to be from 30 to 50 per cent. The rates are lower

and the safety greater. Our rates are now about the same as in New York, but would be decreased by the introduction of water. Our insurance stocks are now high, the business having been very profitable here. One reason that our rates were formerly lower than those in New York, was that our fire department was better than theirs. The Croton aqueduct has equalized this somewhat.

Mr. Curtis was then cross-examined as to the extent of the want of water in the different districts in detail, and the number of vessels requiring supply, but no new facts were elicited. He said that he believed that he did vote for the Spot Pond project in 1838. He then thought that source of supply sufficient.

The Committee then adjourned to meet the next day.

SIXTEENTH SESSION. *Friday, February 28, 1845.*

The rebutting evidence for the petitioners was resumed.

GEORGE W. CRAM, (*called.*) Is a builder—has built houses in all parts of the city. Has not generally put the aqueduct water in the houses he built; on account of the expense and want of certainty. Uses the aqueduct water himself. Lives on the east side of Warren street—have lived there $2\frac{1}{2}$ years. The well water there is called very good water, but I found after using it for about 18 months that it corroded the kettles used &c., and I was advised to use the aqueduct. But my well water is considered good and a great many people from the neighborhood come to take it. The introduction of the aqueduct water cost me \$27 in cash and I did part of the work myself beside. The annual charge from the company for my family is ten dollars. I know of 269 families in wards 10, 11, and South Boston who are not supplied with water. These are South of Boylston street. I traced those who were supplied from the Artesian well at the corner of Dedham and Suffolk streets, and made inquiries as to their wants. I found myself forty-three families dependant on that well. There is a great deficiency in the neighborhood of No. 600 Washington street. This I know because there is a pump in the street from which a large number of people are supplied. I have seen them coming from as far as Tremont street.

As a builder I have frequently had to buy water to mix mortar with—and have paid a great deal of money for it.

I visited South Boston some few days since and called at several houses and found on First street five Artesian wells—but the water was so bad that they could not use it at all except at particular times. I found thirty-four families entirely destitute of water having to go great distances, and sometimes had to come across the bridge and get water from Mr. Wright's well in

Sea street. I paced the distance to that well and found it 1700 feet. When Mr. Alger's gate was open they got water there and sometimes at Mr. Thatcher's and Mr. Harding's well.

I knew a well dug at the corner of Broadway and Dorchester street, South Boston and at first the water was very good, but by degrees it became worse and worse till now it is decidedly bad. I know of people who reside in South Boston who have told me that they had bad water.

I went yesterday to Williams' Court. I found there 22 families who were unprovided with water. Deacon Foster owns one or two of the houses there. Mr. Francis, of the firm of Monroe & Francis, owns one or two. Mr. Carlton of Dorchester, owns tenements in which eleven families reside. A Mr. Scott owns one. There is no well attached to any of these houses.

[The Chairman indicated that it seemed to be unnecessary to press this class of evidence farther, as the want of water was pretty clearly made out. A partial want had been conceded by all parties and the evidence for the two last days seemed to have established that even the parts of the city which had been thought tolerably supplied were not so.]

As a general rule the lumber vessels supply themselves here for their home voyages.

Cross-examined. Mr. Benjamin Gould who lives in Dedham street and takes the aqueduct water said that he was frequently out of water. I have frequently heard complaints. Mr. Jeremy Morey whose store is on Washington street, near Pleasant street who also takes it told me that he had to draw water before hand if he wished to be secure of it. There has been a general complaint of want of water.

On Sea street I found 53 families who got their water from Mr. Thomas Howe's pump. It does not look like new land there, I should think the houses had been built a long time. Near the corner of Tyler street, I found twenty-three families who had to go a distance for water. They have no wells in actual use—one of them told me of a suction from an Artesian well. A Mr. Sawyer who lives in Beach street, who takes the aqueduct says that he is frequently put to it to get water; that it would often take him several minutes to get a pail of water.

The cases which I have spoken of in general, are those in which the families have neither wells, aqueduct or cisterns—I have built a great many houses, in almost all parts of the city, and I know that very many persons would be glad to take the aqueduct if it were not for its high cost, and if they could be sure of a supply.

I remember another case of Mr. James Hendley, (south of Boylston street) who told me he took the aqueduct to supply a

small engine on Front street, but it frequently failed. This, however, was before the new pipe was put in.

Mr. *Cram* went on to give other cases in detail—and in reply to a question from the Committee, said he had heard similar complaints in general conversation at the south part of the city. He had heard many say that they should like to take the aqueduct, but could not afford the expense of the fixtures.

Direct resumed. In ward ten, in many places it is impossible to use the aqueduct without a cistern. We could not get a drop of water unless we caught it in the cistern at the time that it happened to run.

Mr. *Warren* then put in a copy of a petition that was offered to the last Legislature, by the proprietors of the Middlesex Canal, asking leave to close parts of their canal, and to bring in the water as a supply for the city. This petition represented “that by reason of the charter heretofore granted by the General Court, to the Boston and Lowell Corporation, and the Nashua and Lowell Railroad Corporation, the receipts of the said proprietors have been so much diminished as to be inadequate to pay the expenses of the canal, which has now become *nearly useless to the public as a means of transportation*, notwithstanding the utmost exertions of the proprietors to maintain the same in complete repair, and to furnish to the public every possible accommodation. That the said canal is fed by the waters of Concord River, and your petitioners having caused the water to be analysed by skilful chemists, find that its qualities are such that it is eminently fit for the use of the inhabitants of the City of Boston and neighboring towns.”

GEORGE DARRACOTT, having been called, and questioned on the same point, the *Chairman* stated that the Committee conceived that the necessity of a further supply of water for the city was *sufficiently* proved.

Mr. *Warren* said that he would then turn the investigation into another course from that he had intended.

Mr. *Darracott*. I am a citizen of Boston. Last September I went to Spot Pond with Mr. Wm. Thomas, Mr. Brimmer, the Mayor—and others. We made an examination of the pond, going over it in a boat. The water was not so high in the pond as it is sometimes, but higher than it had been. In two instances, when it was proposed that the boat should take a particular direction, the boatmen stated that the water would not be deep enough. We went to the outlet; no objection was made, but it was said that it would be too dark before we returned, if we staid to see it. We found that the outlet measured 24 by 18 inches. The water was a little above the sill of the gate. Mr. Thomas told me that the water had been raised a little by the

fall rains. A man to whom he referred said that it had risen just seven inches. The water then stood four or five inches above the gate. My own impression is that it was four inches. Since that some persons have thought that it was five inches. But at any rate, we inferred that there must be some time in the season when on water ran through the sluice. It was said that it had been so that year for six weeks, and I remarked that if the aqueduct had been constructed the city would have had no water for that length of time. It was replied that the water had been previously wasted, but I observed that the pipe proposed was larger than the whole contents of the existing sluice-way.

This examination changed my opinion. I had been previously in favor of Spot Pond as a source. I knew its natural elevation to be favorable. I now think that it would supply the remainder of the city as well as the Jamaica Pond aqueduct supplies its tenants, but it might not in a dry season. If the city had depended upon Spot Pond for a supply, it would last year have been entirely without water for a time, if the water was used as freely as it is in other cities.

By Committee. I have not estimated the number of gallons that Spot Pond would supply.

[Mr. Warren here remarked that he would ask no questions of this witness as to the *want of water*, as the Committee had intimated that that point had been made out, and the Chairman replied : " I do not think it is necessary, sir. "]

Cross-examined. The size of pipes proposed from Spot Pond, was thirty inches. Know that that pond was measured by a " guage. " I have confidence in the measurement of Mr. Geo. Baldwin. I have not thoroughly examined Mr. Eddy's plan for enlarging the capacity of Spot Pond. I don't know whether our people would use water more freely than is done in Philadelphia. I think that much water is wasted in New York. I believe that if pure soft water were introduced here, every family would eventually use it. A few would for a time continue to use their wells, cisterns and other contrivances, but they would soon get over their prejudices.

I don't know anywhere in Boston where there is a copious supply of good water. Some persons get a good ordinary supply, but there is nowhere the same free abundant supply that there is in New York and Philadelphia. So far as I know the supply furnished by the present aqueduct, it is deficient part of the time, and the tenants are never allowed to use it with freedom. I know of nothing in the habits of our people that would lead them to use it more freely than at the South. I believe that Jamaica Pond is forty acres, and Spot Pond two hundred and eighty acres in area ; but Jamaica Pond is supplied by springs

under the surface that surrounds it, being only a breathing hole for a large space.

The Committee then adjourned to meet the next morning.

SEVENTEENTH SESSION. *Saturday March 1, 1845.*

The rebutting evidence for the petition was resumed.

NATHAN HALE, (called.) I reside in Boston. Have examined the subject of the introduction of water, in consequence of having been appointed a Commissioner upon it in 1837, to fill the vacancy occasioned by a resignation in the Commission of that year. I was concerned in the reports of 1837 and '38, and was subsequently appointed on the new commission last summer; acted with the Commissioners in all their investigations, and in framing their report.

We spent much time in investigating what quantity of water ought to be provided, that being one question to be determined before a selection of a source could be made. We examined all the sources in the neighborhood of the city; some of them only cursorily, but Spot Pond very particularly, because it consists of good water, is high, and is conveniently placed for the introduction of its water by pipes. If water is brought in through pipes, a much greater descent is required than by other modes. We gave particular attention, therefore, to the quantity of water in Spot Pond, and a guage was prepared to measure it, which is, I think, entitled to the utmost confidence. [Mr. Hale then proceeded to describe this guage, and the manner of measuring the water by it.] The result of this measurement was stated in our report of 1838. We calculated that it would yield 1,444,120 gallons a day, as the minimum supply. We had before estimated it larger; I think at 2,100,000 gallons in our report of 1837. The average we stated in 1838 at 1,700,000.

During the investigation, neither member of the Commission expressed an opinion as to the source. We thought that the water of Charles River was not so good, but that if it was cheaper, we ought to report in favor of it, and therefore investigated with regard to all three sources. Spot Pond would have been the cheapest if there had been water enough. But it was necessary to provide some supplemental supply. Mystic Pond was the most convenient for this purpose, because it was in the line from Spot Pond to the city, and Mr. Treadwell and I thought that the cheapest plan would be to bring in the water from these two ponds. At that time we were not satisfied of the efficiency of a brick aqueduct, laid in American hydraulic cement. There was some reason then to suppose that the water would be injured and the cement softened. That doubt is now entirely removed by the use of the cement in the New York aqueduct, and in re-

servoirs here and elsewhere. We, however, on these grounds, recommended the water from Spot Pond with a supplemental supply from Mystic. We estimated the population of the city then at 80,000, and entered into a calculation, perhaps an abstruse one, to prove that the supply from Spot Pond being supposed to be sufficient for the then want, the fund would be so increasing as to pay for pumping up the water from the Mystic to supply future wants; that as the want increased the means for furnishing the supplemental supply would increase. But the population is already beyond the limit of the extreme of our calculation, and it would now be a great saving to supply the whole without going to the expense of pumping. The estimate of the cost of introducing the Spot Pond water, with a provision for using the Mystic as it should be needed, was in the report of 1838, \$839,806. I have revised this estimate, putting in the reduced prices of iron and lead, and should now deduct \$89,759, which would make the present estimate of the cost of introducing 2,500,000 gallons, \$750,047. The water from Long Pond, introducing 7,000,000 gallons, would, according to this, have cost \$220,000 more. [Mr. Hale read from the report as to the prospective increase of the Spot Pond supply by the use of the water of Mystic Pond, showing that the estimate for the supply of 4,200,000 from the two, would be only \$27,000 less than that for the full supply from Long Pond.]

We had a good deal of discussion about the means and expense of crossing Charles river with the pipes from Spot Pond, but we were of opinion that there was no mode which could be safely relied upon. Any mode would have been experimental, with doubtful expense and uncertain results. It was therefore thought it would be necessary to come round through Cambridge, crossing that river higher up over the Brighton bridge. The Legislature have since authorized the construction of a draw in that bridge, which would make even that passage more expensive.

As to *Long Pond*, we did not have the same facilities for measuring it in 1837 as we had with Spot Pond. [Mr. Hale here stated the means taken for this measurement, referring to page 9 of the Report of 1837.] We by these means settled on 5 feet a second as the natural resource of the pond, without depending upon the accumulation, and we have now no facts to change this opinion. This, with all due allowances, gives the result of 7,000,000 gallons a day, as we now estimate it.

Witness was then examined as to the character of the structure. In 1837 we proposed a structure similar to that now recommended, in case the water was taken from Long Pond. We have however changed the form from a circular one to an oval for satisfactory reasons. We were then satisfied that it

would be very strong, provided the cement was to be depended upon, of which I have said we had then some doubts, which have since been removed. I had no occasion to examine this matter again until appointed on the commission of last year. We then visited New York for the purpose of obtaining information generally upon this subject, and particularly with regard to the efficiency of brick and cement for such purposes. The gentlemen connected with the New York work were very obliging to us, and afforded us every facility, and answered every inquiry as fully as possible. We found that there was nothing more durable than brick laid in hydraulic cement. I believe it would last forever. The cement gets as hard as the brick itself, and when a mass of it is broken by extreme force it is found that the hard-burnt brick breaks as easily as the cement. I do not know its strength in comparison with mortar. The proposed Long Pond aqueduct is 8 inches thick, precisely the same as the Croton. [Mr. Hale here briefly compared the two structures.] Ours is a different structure from the Croton, but I believe that it is the strongest structure. It is fully as strong as the Croton, and none of the scientific men whom we consulted in New York spoke otherwise of it.

We shall have very few embankments and those very low. Mr. Baldwin and I were both of opinion that on these the foundation could be made as solid as on natural earth. But if a stone foundation is necessary at all, it is only on the embankments, and the whole distance where we have any embankments is only 8000 feet, and much of that is only one foot high. The soil is very favorable, most of it gravel. I have made a calculation of the expense of a stone foundation in these places should it be found necessary. Making it 9 feet wide, it would require 18,194 perches of stone, which can be laid at \$1.50 per perch, and deducting 17 cents a perch for earth, (for if the place is filled with stone the expense already allowed for earth may be deducted) this will amount to an additional expense of only \$24,198.

As to water rights. We put the water rights and land damages down at \$100,000. We have looked at the subject in every point of view, and are satisfied that this sum is enough. Mr. Knight may be compensated by furnishing him the means to carry on his works by steam; it will not be necessary to abandon them. He is content to be furnished by steam power, with which indeed his works can be carried on somewhat better than by water, if he can only have water enough to wash his wool. The most serious claim in 1837 was supposed to be that of the Middlesex Canal Company. The reply to this claim will be found in the documents. We have not stated any particular sum as the amount of their damages, but are fully of opinion

that a supply of water can be furnished them by artificial reservoirs constructed to retain the water from the spring when there is an over-supply till the dry season, when it is needed. They could be easily supplied in this manner with all the water needed, even if they did a full business. Some of the proposed reservoirs looked to for this purpose, have been since the Report of 1837 bought up by individuals, but there are others, which it was not necessary—and it would not have been prudent—to indicate specifically in the Report.

The Committee here adjourned to meet on Monday morning.

EIGHTEENTH SESSION. *Monday, March 3, 1845.*

NATHAN HALE. *Direct resumed.* We had before us the reports of the Croton works up to 1837, inclusive. We knew the plan of their work. And we adopted the circular form of aqueduct because we thought it more economical, and decidedly stronger than any other form, in proportion to the masonry used. It is very much stronger in proportion to the amount of masonry than the form used in the Croton works.

We knew of no form of aqueduct like it, but we found that the city reservoirs in this city built on a similar principle, proved well adapted to their purpose and strong and firm.

When last year it became necessary for us to prepare another estimate for an aqueduct, the question came up whether we should adopt the form proposed in 1837. We resolved to retain the general principle, but to change the form so far as to admit the passage of a man through it, to repair it when necessary. The former plan was for an aqueduct 4 6-10 feet in height. We made our new plan for an oval aqueduct. The old plan would carry all the water needed, but we did not wish it filled with water. There should be a circulation of air above the water. The section of the plan which we adopted gives a semi-circle at the bottom, the sides draw together above the horizontal diameter of this semi-circle, and unite at the top in a curve nearly the arc of a smaller circle. This gives most capacity at the bottom and most strength at the top, where most strength is needed. The smaller the arch the stronger. We were satisfied that this was decidedly the best shape. We wanted height but not width, and this gave it without waste of material

To Mr. *Dwight.* In an aqueduct of this shape and size, the water can be drawn down and a man may pass through in a small boat to repair it.

An aqueduct thus laid, with walls of double brick, laid in hydraulic cement would be abundantly strong for every purpose required. It rests on the natural earth where that is firm and

solid. Where it is loose it must be made sound of course. But we are sure that such an arrangement is better than any of a single range of brick on concrete on any other foundation.

The internal section of the Croton work is 53 square feet, that of ours is 24 square feet.

The drawings which I exhibit show the form of the Croton ; ours—instead of this expensive stone work at the bottom gives a curve, a stronger form, of brick laid in cement.

Our views have since been entirely and exactly confirmed by testimony of English engineers examined before the Parliamentary Commission on Health in large cities, in the year 1843.

Mr. H. then read from a large volume lately printed by order of the British Parliament containing minutes of evidence taken before “ Commissioners of Inquiry into the state of large towns and populous districts, in regard to drainage, supply of water, &c.” the following passages :—

From the evidence of WILLIAM HOSKINS, Esq., Professor of Architecture in Kings College, June 10th, 1843,—the Earl of Lincoln in the Chair.

“ What do you consider the best form of drain ? I think the best form to be that of the longitudinal section of an egg, placed with its small end down. It confines the water when there is a small quantity, so that it may act upon the substances that pass into the drain with most effect, and it gives an increased space to the water as it increases in depth.”

June 17, 1843. Evidence of WILLIAM D. GUTHRIE, Esq.

“ What form would you recommend for the secondary drains, such as are to receive a number of small ones ? I think the form adopted by the Holborn & Finsbury Commissioners is the better form.

“ You recommend the form of the different descriptions of drain adopted by the Finsbury District ? Yes ; they are egg-shaped.

“ That gives greater strength ? The greatest strength is by that form secured, and it has the additional advantage of rendering efficient a small quantity of water, the apex being turned downwards.”

“ June 24, 1843. The Duke of Buccleugh in the Chair. Evidence of EDWARD CRESSY, Esq., an Architect of 30 years practice.

“ With respect to the particular forms of sewers, have you turned your attention to that subject at all ? I have often considered the form used in the Borough District, and also the Westminster District, and in other districts, and my impression is that the form which would nearest approach an egg-shape, would be the preferable one. There is more economy in it, and greater strength.

“With respect to the form of the sides of the drain, do you conceive the form of a curve to be stronger than an upright side? If you were to take the section of an egg, I do not think it would be possible to have a better form. You would have more strength by that than by any other form.

“That would embrace a curve for the sides? Instead of having a straight side, you would have a slight curve; you might have a curve at the bottom, and a curve at the top.

“That would enable you to have a resistance to the lateral pressure, which is a considerable object, where you have loose ground? Exactly.

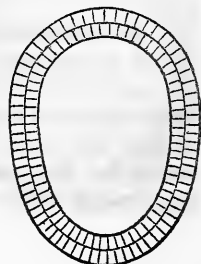
“Would it also enable you in any given circumstance, to make the drain of greater strength with less material? Certainly; there is less material required in that shape than in the Westminster sewer. If you have the same quantity of material to use with the egg-shape that you have with the section of the Westminster sewer, you will get a much greater capacity.”

“*March 21, 1844.* Evidence of B. WILLIAMS, Esq., Civil Engineer and Professor at the College of Civil Engineers at Putney.

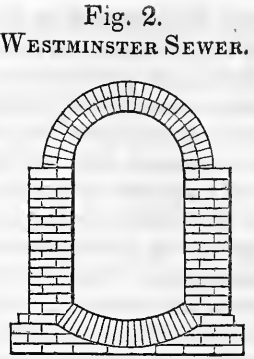
“Have you had occasion to examine the forms of sewers? I have examined, among others, the forms of some of the sewers in the metropolis, viz: those of the Westminster, the city, the Finsbury and Holborn district.

“Have you compared the qualities of those sewers, in respect of economy of materials, strength and adaptation to the passage of water? The difference between the Finsbury and Holborn and the city of London sewers is very inconsiderable; both are designed on the same principles, and with the same views towards the economy of materials. In answering the question, I would therefore compare the Finsbury [Fig. 1.] and the Westminster sewers, [Fig. 2,] respecting the form, of which there exists a wide difference. First, as regards economy of materials, the upright sided sewers, with horizontal footings, requires for the same water way, a much greater number of bricks than the egg-
Fig. 1.
 shaped sewer. Comparing sewers of the **FINSBURY SEWER.**

same class as in the Westminster district, it is found that the upright side sewer contains for one foot in length,	261	
The egg-shaped, for one foot in length,	175	“
One mile of the first would require therefore,	1,378,080	“
One mile of the second would require	924,140	“



“ One mile of the sewerage of the upright form would require upwards of half a million of bricks more than one mile of the egg-shaped sewer, and the number of bricks that would complete one mile of the upright formed sewerage would suffice for one mile and a half of the egg-shaped sewer. The number of cubic yards of brick work per mile of sewerage, would be for the upright sided sewer 3,888 cubic yards. For the egg-shaped 2,272 “ “ Giving an excess for the former of 1,116 “ “



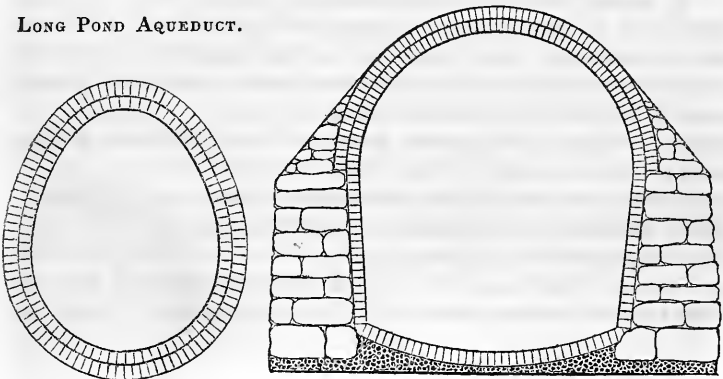
Which, valued at 20s. a cubic yard, would amount to £1,116. But the excess of expenditure would not be with the brick work only. The width of the footings used in the upright sided sewer causes great additional expense in the excavation. The gullet must be excavated at least eighteen inches wider than for the egg-shaped sewer. The depths to which the excavation of the main lines have to be carried, average generally twenty feet.”

[Here the witness went into the comparative cost of the two kinds of structures, exhibiting a difference in favor of the egg-shaped of £1,660 3s. 3d. per mile, which, according

NOTE. For the purpose of showing the analogy between the egg-shaped sewer, as described by the witness, and illustrated by a cut, and the egg-shaped aqueduct recommended by the Commission for conveying the water of Long Pond, and also between the Westminster form of sewer and the form of the Croton aqueduct, the following cuts are subjoined, exhibiting on the same scale [five feet to an inch] a section of the two aqueducts.

CROTON AQUEDUCT.

LONG POND AQUEDUCT.



to his computation, had the improved form been adopted during the last ten years in five districts of the City of London, would have produced a saving of expense to the amount of nearly a quarter of a million pounds sterling, and this he believes would have been but a part of the benefit which would have resulted from the adoption of the improved mode.]

“In respect of the strength, how have you found the sewers, with upright walls, and with arched walls, to stand? No instance of the failure of the arched sewer has come to my knowledge. I have seen one instance, near Notting Hill, where the upright sewer had fallen in, been rebuilt, had again fallen, and was rebuilt a third time, with extraordinary precautions of piling and stuffing to resist lateral pressure from a slip which was forcing in the upright side walls. Informed of this failure, and knowing that it would offer a useful lesson to the students of Putney College, I took them to examine the work. In one place the whole culvert had slipped bodily with the clay, the form being at the same time distorted. This moving bodily would have occurred with any shaped sewer; but the displacement in the mass was the exception. Usually one of the upright sides, and sometimes both the uprights, were crushed inwards towards each other, the invert retaining its position in the longitudinal direction of the sewer. In one place I observed that the invert had been forced upwards when the resistance from the upright walls had been withdrawn.

“In those portions which were not carried away bodily by the slip, do you think that the failure, either wholly or partially, arose from any defect in the principle of construction? I think that the failure arose partially from the want of power in the upright walls to resist lateral pressure so effectually as may be done by arched sides.”

“If proper science were available, would there be any question as to the shape, in respect of strength? I believe not. I am aware that there are certain physical questions which have been investigated scientifically, and about the results of which investigations much difference of opinion still prevails. But a well known theory of the equilibrium of sustaining walls on earth, is universally accepted as true, and is confirmed to be such by its repeated application in hydraulic works, and frequent adoption for culverts, retaining walls &c. The theory, the investigations of which were first pursued by Coulomb, indicates that a sewer, with an external convex form, to resist lateral pressure, is the most stable. With firm

ground the egg shaped sewer would be the best. For known conditions of varying densities in the external earth, modifications from the egg-shape would be required, but in no case departing from the application of the principle of the arch. With semi-fluid ground, it should approach more nearly to the form of the circle. The egg-shape, however, presents this important advantage for the conveyance of water, exclusive of its superior strength and economy, that when the water is small in amount, the narrowness of the lower part gives a greater hydraulic depth, and therefore produces increased velocity, and when the body of water is increased, more capacity is obtained. The superiority of the egg-shaped sewer, in point of strength, is so self-evident, that it really appeared a work of supererogation to demonstrate it technically. All grant that the properties of the arch are such as to resist pressure, with the least consumption of materials, and, that the outward batter or slope is useful to resist the lateral or inward pressure of the external earth, is an admitted principle, acted upon instinctively by every one. Whoever walks against the strong wind, instinctively leans forward against it, being well aware that, with the body in an inclining or sloping direction, he can resist its force better than if he stood upright."

The Commissioners had no doubt that the whole work could have been contracted for at a less price than they estimated, and I have had no reason to change that opinion. Unless there should be some material change in the price of labor or materials, I have not the least doubt that the work could be done for less than the cost estimated in the report. I consider the structure fully sufficient, whether there should be a foundation wall laid in the embankments or not. If there should, I have given my estimates of the stone work necessary, which would amount to but little over \$25,000. I have here a table of embankments and excavations, which shows the amount of each. It will be seen that the greater part of the way the aqueduct will be in excavations, and consequently under ground. On the Croton work there has been a large expense for ornamental work, which we have not considered necessary. Their expenses for rock cutting, both open cutting and tunnel cutting, were, from the nature of the ground, much greater than ours will be, even in proportion to the distance. The Croton work crosses several streams and deep ravines, while the ground between Long Pond and Boston is very favorable for such a work.

My opinion upon the effect of this work upon rates of in-

insurance, is expressed in the Report of 1837 (p. 42 of the new edition, 34 of the old,) as follows :

“It is the opinion of persons conversant with the hazards and rates of insurance, that the risk of loss by fire, and, consequently the rates of insurance, which would be charged by insurance companies, if such a system for the supply of water as is now proposed were introduced, would be reduced about one third,—the present average rate, being not far from forty cents on a hundred dollars, per annum. The amount of property in the City of Boston, exposed to the hazard of destruction by fire, is probably not less than \$75,000,000. Admitting therefore that the risk of insurance on this property is at this time equal to 4-10 of one per cent., and that the proposed supply of water would reduce this risk by one third, the saving which would then be made to the inhabitants of the city in the risk of loss by fire, would be equal to \$100,000 per annum. It is not material that this estimate should be scrutinized with great exactness. Whether the sum here named be too high or too low, will not be questioned, that the annual saving from loss by fire would be equivalent to a very large sum, and would go far to reduce the hazard of those distressing conflagrations, which sometimes occur, and which, from the amount of property destroyed, and the number of persons deprived of employment give a sensible check to the growth and prosperity of the city.”

This opinion I took at the time from the gentlemen I supposed most able to form a judgment upon the subject. I remember having consulted with Mr. Balch upon it.

Mr. Hale was then examined, as to the amount of supply necessary. He took the amount used in Philadelphia as a good standard of the amount needed; better than the example of any foreign city, because the condition of the inhabitants, and their habits of living, more nearly resembled those of our own citizens. The Commissioners of 1837, for this reason, took the quantity supplied by the Philadelphia water works, in proportion to the population of the district supplied, as the basis of their calculation. This amounted, according to their estimate, to $28\frac{1}{2}$ wine gallons for each inhabitant. The last report of the Philadelphia Watering Committee shewed a little larger amount of supply. He referred to the following statement, at page 25 of the report of the Watering Committee of 1844.

“The consumption of water in the city and districts, during the year 1844, were as follows :

	Gallons.
From January to April, a term of 13 weeks, an average daily supply of	3,654,517
From April to July, a term of 13 weeks, an average daily supply of	5,445,291
From July to October, a term of 13 weeks, an average daily supply of	6,949,102

Being an average daily supply of 5,330,455 gallons, equal to 189 gallons to each water tenant.

The above supply of water was distributed as follows :

	Tenants.
To 14,021 tenants who pay for the water in the city, and to 3,500 families who receive a supply without charge, from public hydrant pumps, making together in the city	17,521
And by private hydrants in Spring Garden,	3,470
“ “ “ Kensington,	735
“ “ “ Northern Liberties,	3,478
“ “ “ Moyamensing,	664
“ “ “ Southwark,	2,214
	<hr/>
Together,	28,082

The Philadelphia water works were constructed at the sole expense of the City of Philadelphia, independently of the districts. It was therefore supplied at a lower charge to each tenant, and more fully supplied, as appeared from the above statement, the population of the city according to the census of 1840 being 93,665, and that of the five districts 126,758. The supply to the city he considered as the proper test of that which would be required for the City of Boston. The number of tenants in the city, including 3,500 families supplied without charge, was 17,521. The average daily supply for the year of this number of tenants, at 189 gallons per tenant would be equal to 3,311,469 gallons for the inhabitants of the city, which quantity divided by 93,665 the number of inhabitants, gives a fraction over 35 gallons to each. This was the average daily supply for the whole year. The daily supply for the summer months was nearly a third more. He said it would not be sufficient to provide means of supplying only the average demand daily. The demand would be very unequal, and the supply should be sufficient to meet daily the greatest demand likely to arise on any day. This would be in summer much greater than in winter, and on some days of the week much greater than

on other days. He considered therefore the computation of 28 or 30 gallons to each inhabitant, taking double the present population of the city, a very moderate estimate of the quantity of water which ought to be provided for.

Cross-examined by B. R. Curtis, Esq. We did not in 1837 make a definite plan for reservoirs to supply the deficiency created in Concord River. We had no authority to make purchases or do anything towards procuring that supply and therefore could not take definite action. The recent Commission did not go at all into this inquiry.

By the Committee. We were satisfied that there are sources of supply where water could be accumulated from the Spring season to be used in the dry season. Magog Pond is one of these. It was not desirable to point them out in the report so as to make them objects of speculation. Magog Pond is about ten miles from Long Pond, about twice as far from Boston. I did not go to it personally. Mr. Baldwin and Mr. George Bond thought that it would be worth while for the city to buy that pond for this purpose, but we had no power to make contracts.

By Mr. Derby All the analyses of water which we thought material were made in 1837. I have heard that there has been one made by Mr. Jackson since our Commission terminated but I do not know the result. The analysis showed a small quantity of impurity more in Long Pond than in Spot Pond. Mr. Odiorne has told me that there was water fraudulently drawn off from Spot Pond in the night at the time we were making our measurement. We had no knowledge of any such thing, and had reason to suppose that the person whom we employed was faithful and measured all the water that passed from the pond.

I have not the information which would enable me to say accurately how deep the tide water flows back into Mystic Pond. I have known it to flow back for an hour or two and to the depth of one or two feet. It never flows back any deeper to my knowledge. I should think that the depth would depend more upon the quantity of water in the river than upon the state of the tides. At high spring tides I should think that it must rise much higher. We thought this water might be shut out by a dam of moderate height and did not think there were serious objections to it, but Mr. Baldwin gave more weight to it.

I made an allowance for the fall of coal in my revised estimate of the cost of pumping the water from Mystic Pond. There has been no substantial improvement in the

machinery for pumping since the introduction of the Cornish pump. Mr. Treadwell who made the estimates had Wickstead's work which has been referred to. I have allowed 10 per cent. for improvements in engines.

As to Charles River my estimate is that the cost of pumping 7,000,000 gallons a day into the reservoir on Corey's Hill would be \$905,745. To bring the same from Long Pond would cost only \$749,200, being a saving of \$196,500. If only 5,000,000 of gallons are taken it would save \$188,000 on the Charles River plan, but if the Long Pond works were reduced to the same standard there would be a similar saving.

NINETEENTH SESSION, *Tuesday Morning, March 4, 1845.*

Nathan Hale, cross-examination resumed. My computation for the cost of pumping from Charles River to Corey's Hill is based on an estimate for two pipes that being the estimate for the supply of the city from the reservoir.

A 32 inch pipe would cost more than a 30 inch, and the increase of cost would be larger than the ratio of the increase of diameter. I do not think 10 per cent. additional would be a sufficient estimate for this increase. The metal must be thicker. I calculated the expense attending this on the same requisites as for carrying water in pipes to Corey's Hill, as in bringing it thence for distribution in the city.

If you suppose it safe to rely on a single pipe, a large one will of course be cheaper than two of the same area.

[The remonstrants here put in their estimate for pumping from Charles River at Watertown to Corey's Hill, supposing one pipe of 32 inches:—including cost of pipe, engines, waste weirs, and the principal of their estimate for the cost of pumping estimated at 5 per cent. The amount of this estimate was \$857,010.]

Cross-examination resumed. I suppose Anthracite coal can be carried from Boston to Watertown for a dollar a ton. Bituminous coal can be carried for a similar price. The price per chaldron will be in proportion to the weight of the chaldron.

Questions by Mr. Derby. Can you not introduce at first a small pipe, and afterwards as the demand increases introduce a second?

Certainly. But not if you economise in pipe by using one large one instead of two of less diameter.

If you raise the water to the height of 60 feet only instead of 120, you will reduce by one half the working expenses.

Sixty feet head would suffice for household purposes in all

the low lands in the outskirts of the city :—on the Neck, in the South Cove, on the Mill Pond. For the extinguishing fire the higher the head the better.

Most of the houses on these lands are not more than 30 feet high.

To Mr. Hubbard. The reservoir which we propose on Corey's hill will raise water a little above the floor of the State House.

Above that level it is of no use for economical purposes.

We contemplated a reservoir on Beacon Hill, whose pressure could be applied to the distributing pipes or not as was necessary. In case of fire, where a full pressure would be needed and the pipes should be kept fully charged it would be applied. The reservoir would itself be filled by the slower flow from the large reservoir on Corey's Hill.

In cases of fire a hose could then be attached to any stop-cock and water thrown to any part of any house in the city excepting those on Beacon Hill.

It would throw water thus in four-fifths of the city.

Spot Pond would supply all elevations in the same way, if a reservoir were thus arranged on Beacon Hill.

Baptist Pond is good water but the supply is small. It empties above the Watertown dam.

London is supplied by pumping.

The Cornish Mines are drained by pumping.

There are some sewers in Philadelphia in the larger streets and the system is enlarged from time to time. They have not a good system of sewers. The streets are washed with water.

The water rent for a householder in Philadelphia is \$5,00. For special uses he pays extra rates. The great body of householders pay \$5,00.

We computed at a similar rent here.

There are 20,000 water tenants in Philadelphia. I do not think it would be extravagant to expect as many here. The average rent would be above \$5,00.

I have made no calculations as to the number of buildings in Boston. I should not suppose there would be more than one tenant to a building.

I do not suppose that any less amount than that at Philadelphia will satisfy our population. The experience of Edinburgh would not convince me that a less supply than that at Philadelphia would be amply sufficient.

Excepting that the population is not now so dense, South Boston needs the water as much as the city proper. The natural supply, of course, is not so largely drawn upon.

There is an aqueduct from Jamaica Pond to Boston. The water is of the first class. Its supply of course comes as an element into any calculation as to the amount of water necessary.

The average distance to which the bricks for the aqueduct must be carried is between twelve and thirteen miles.

The cost of carrying them would vary, from a variety of circumstances. For so large quantity as this I suppose you could contract on the average at about \$1,50. Certainly not less than a dollar.

Question by Mr. Derby. Why then do you estimate in your report of '37, this cost at two cents a thousand?

That is a misprint in the pamphlet.

Mr. Derby. But the error is carried into the footing?

The error is not in the footing as may be seen by adding the items. It is in the printer's footing at the bottom of the page but not in the footing which is carried out into the general calculation. That amount contains the item stated, at an estimate of two *dollars*.

We consider ten dollars a thousand a liberal estimate for brick and carting.

Cement can be delivered for \$1.50 a cask at the spot. Brick can be laid for \$2.50 a thousand for the best of ordinary work. This work is a peculiar shape, and we estimated therefore at \$3.00 a thousand.

If the preparations for this work were made in one season, I think it could be finished in two seasons more.

There is clay on the borders of Long Pond, and an old kiln, at which brick has been made, of good quality. I cannot say whether such can now be made there, at a price sufficiently low.

The width of the excavations at the bottom varies with that of the outside of the aqueduct. At a distance of two feet four inches from the bottom, the excavation will be six feet four inches wide. It is not intended that any earth shall be removed which must be replaced.

At the bottom of the deep cuts, the work must be done with wheelbarrows. I do not doubt it can be contracted for, should the soil be favorable, at 12½ cents a cubic yard.

By Mr. Lawrence, of the Committee. I have always found that contracts for large amounts of brick or other similar articles could be made at lower prices than for a smaller amount.

In reply to a question by Mr. Henry Williams. The Committee, in making the estimate of cost of the proposed aque-

duct, did not confine themselves to the price at which the principal articles, brick, iron and labor, might be contracted for at the time, but took a somewhat higher price, such as in their opinion would cover any probable increase of price, arising from an increased demand. Am decidedly of opinion that Long Pond is the most eligible source from which to obtain the supply, on the ground of the superior quality of the water to that of any other source which will afford it in sufficient quantity, and the less cost at which a sufficient supply can be obtained.

JOTHAM B. MUNROE, called by Mr. Derby. I am engaged in the watering business, and keep a boat for the supply of shipping in the harbor. There are in all six boats employed in the business, the proprietors of which have an agreement with one another to keep an account of all our earnings, and meet monthly and divide them equally. We do all the business of supplying the shipping in the harbor. The whole amount received during the last five years was between \$37,000 and \$38,000. This includes the city proper, East Boston, and Charlestown. The quantity sold annually the two last years, was about \$6,000. The water is obtained chiefly at Chelsea, where it is pumped by them, by hand. It is of good quality. They pay a small price for it, about \$250 or \$300 a year. Think that if water were introduced to the city the shipping would continue to be chiefly supplied by boats.

Mr. Derby here put in a statement, made up from the tax book, to show that the property of the Boston remonstrants amounted to \$23,780,000, the whole city valuation being \$118,000. He also put in a report of R. H. Eddy to Abbott Lawrence, with regard to the Middlesex Canal.

The Committee then adjourned to meet the next afternoon.

TWENTIETH SESSION. *Tuesday, March 4, 1845.*

Nathan Hale's cross-examination was resumed.

In answer to a question why the Commissioners had estimated for a smaller number of ventilators than were provided on the Croton aqueduct. Mr. H. said that they proposed to construct three waste weirs, with ventilation at convenient stations, which would divide the work into four sections, in each of which they proposed an additional ventilator, which they supposed would be sufficient, but it was a subject to which they had not given any great consideration.

He was asked if the estimate of land damages was not very low, and on what principle the estimate was made. The

route proposed for the aqueduct was chiefly through pasture land, of very little value, and much of it below the surface of the ground. In this respect it differed much from the New York work, much of which passed through villages, and land of great value, and the damages were accordingly high. A small part of the route in Newton and Brighton, for perhaps a mile or two, passes through quite valuable land, but the average of the route was through land of low value.

Did not the Worcester Railroad, with which you are connected, cost much more than the estimate? It did. But the estimate was for a very different work from that which was finally constructed. It was for a single track, without depots or land, except for the train, and including a very small number of engines and cars. The present road embraces two tracks, adapted to a much larger amount of business than was originally provided for, and the land and buildings in Boston alone cost more than half a million of dollars.

In reply to a question by Mr. Hubbard, if he did not consider an aqueduct composed of iron pipe the best adapted for supplying the city, witness said that at the time of making the report of 1837, he was of opinion that a brick aqueduct, laid in American hydraulic cement, could not be so safely relied upon as iron pipe, for the reason that they were not then able to obtain satisfactory evidence that the cement had been sufficiently tested. There was some reason to apprehend, from such evidence as they had then obtained, that it might dissolve in process of time, and that it would injure the quality of the water. But ample experience since that time had removed all apprehension on that point, and he considered a brick aqueduct, constructed like the Croton works, or like that proposed here, would be as durable, and as little liable to have a deleterious effect upon the water as iron pipes.

LEMUEL SHATTUCK, (recalled.) This table, exhibiting the miles of pipes laid, the number of water tenants, and the average number of gallons supplied daily to the whole and to each, by the Fairmount Water Works, is compiled from the Reports of the Watering Committee. I have no reports of the years not specified.

Year.	IN THE CITY ALONE.				IN THE CITY AND DISTRICTS.			
	miles Pipe.	Free.	Paying.	Total.	Miles. Pipe.	Tenants	Average gallons supplied daily.	Each tenant.
1831	44			7,988		11,404	2,000,000	175
1834		2,500			82½	16,895	3,400,000	200
1835	54¾	3,000	10,059	13,059	93	18,704	3,497,648	187
1836	58	3,000	10,632	13,632	98¾	19,678	3,122,664	160
1838	61¾	3,000	11,436	14,436	106¾	21,947	3,850,647	175
1839	62½	3,100	11,956	15,056	109¾	22,636	3,578,357	175
1840						23,482	4,034,638	171
1841	63	3,300	12,749	16,049	113½	24,828	4,445,630	179
1842	64¾	3,300	13,138	16,438	114¾	25,816	4,257,480	167
1843	65½	3,300	13,439	16,739	117½	26,549	4,422,400	166
1844	66½	3,500	14,021	17,521	120¾	28,082	5,330,445	180

This gives an average for the last five years, of 175 gallons; and the previous six years, 178 to each tenant. In 1840, the population of the water districts was 220,423, and the number of water tenants 23,482, which gives one tenant to nearly 10 inhabitants, or 18 gallons to each, and not 28½, as stated above. There were then laid about 111 miles pipe, which gives 234 tenants to the mile. In 1844, there were 120¾ miles of pipe laid, and 28,082 water tenants, averaging also 234 tenants to the mile.

The quantity of water furnished by the Croton Works, in New York, is not measured. Last November, 155 miles of pipe was laid there, to accommodate about 40,000 dwelling-houses, and 310,000 inhabitants; and there were 8,644 paying water takers, averaging 55 to every mile of pipe, one to every 4½ dwelling houses, and one to 36 inhabitants.

I have compiled this table, exhibiting the total cost, (including only the distributing pipes and fixtures of the old works applicable to the new,) the gross income, the expenditures, and the net income of the whole of the Philadelphia water works, and for each tenant, for such years as I have reports.

	Total Cost.	Gross Income.	Expenses.	Net Income.	Each tenant.
1831	\$1,178,323 54	\$ 66,766 72	\$63,009 57	\$ 3,757 15	\$.32
1834	1,264,292 36	90,631 00	65,163 36	25,467 64	1.50
1835	1,323,580 74	92,116 82	73,288 38	18,828 44	1.00
1836	1,381,031 43	101,266 39	71,706 57	29,559 82	1.50
1838	not stated.	109,826 06	50,642 29	59,183 77	2.69
1841	1,483,300 40	134,634 67	24,701 75	109,932 92	4.42
1842	1,493,688 20	139,682 97	63,911 40	75,771 57	2.93
1843	1,584,594 05	144,765 74	63,171 84	81,593 90	3.07
1844	1,670,000 00	151,501 37	24,332 10	127,169 27	4.52

From this table it appears that the average net income for

the last four years has been \$3.73 for each tenant ; the five previous years, \$1.40 each. The City of Philadelphia has hitherto supplied the five adjoining districts,—having independent governments, but resembling the outer wards of the city,—Spring Garden, Kensington, and Northern Liberties, lying north of the city, in 1844, containing 7,683 water tenants ; and Moyamensing and Southwark, lying south of the city, containing 2,878 tenants. These districts have paid 50 per cent. higher for water than was paid in the city, common dwellings paying in the former \$7,50, and in the latter \$5,00 each, and others in proportion. Objections have been made to paying these prices, and a contract has recently been concluded by which the southern districts will be supplied for the next ten years at the same rates as the city. The three northern districts, have, however, declined taking water even at these prices, and have erected steam works on Pratt's Hill, to supply themselves. This will reduce the number of water tenants, this year, to 20,399 ; the gross income to \$92,287.88 ; and the net income to \$63,087.83, or \$3.08 per tenant.

NATHAN HALE, (recalled.) Witness was asked if he was acquainted with the manner in which the income and expenses of the Philadelphia water works are exhibited in the published reports.

Mr. H. stated that he had had occasion to examine minutely the report of the last year, from which it appeared that the current expenses of the year for repairs and management, amounted to about \$16,000, and that a further sum, exceeding \$8,000, was expended for extending the works, by laying down new pipe in parts of the city and districts not previously supplied, which was also classed with the expenditures of the year. In some other years a much larger sum had been expended for new works, and the expenditures thus added to the capital, as well as the current expenses, were deducted from the receipts for water rents, for producing amounts stated as net income.

CALEB EDDY, (recalled.) When the proprietors of the Middlesex Canal, last winter, presented their petition to the Legislature, they were discouraged by the state of the business of the canal during the preceding year. They lost a debt of \$4,800, by the failure of one of their debtors. The Concord Watering Company left them, and sold off their boats to the Railroad Corporation. In the year 1843, the number of passports for boats passing through the locks was 6,000. The number fell off in the latter part of the year. The income amounted to \$7,000, exclusive of the \$4,800 not col-

lected. The income is about the same amount this year. The actual receipts exclusive of proceeds of sales of some property, did not quite pay expenses. This year have paid a dividend of \$10 a share and have a surplus of about \$1000. The boats last year were somewhat more than the year before. From contracts which have been made for next year, particularly for a large number of railroad sleepers, thinks the business will be much increased. See no reason why it may not do as well as for some time past, since the railroad has been in operation. Am satisfied that if the water of Long Pond is diverted the canal cannot be kept in operation. Any uncertainty in regard to the regularity of the business of the owners will be fatal to it. All the timber that comes down the canal is floated directly to the ship yard. The fall of Concord River for a distance of 22 miles above the canal is 2.85 feet. Do not think it would be practicable to supply the deficiency arising from the diversion of the water of Long Pond by means of a reservoir on the bank of the river. The rise of water is four to five feet in the highest spring freshets. Water retained in a reservoir to a depth of three or four feet would be all gone by filtration and evaporation, by the latter part of the summer when it would be wanted.

TWENTY-FIRST SESSION. *Wednesday March 5th, 1845.*

Mr. Bartlett on the part of the remonstrants called two witnesses farther.

CYRUS ALGER. Has been somewhat acquainted with Spot Pond and its works. My opinion formerly—sometime between 1816 and 1822 when I went twice to the pond with a view to introducing the water to the city—was, that there was an ample supply there. I have not been to the pond since, but have been at the works below where all the water is discharged, and have not perceived any diminution of the amount of water. I should be willing to contract to bring in the water from Spot Pond by iron pipe—using the existing bridges—and delivering it at a reservoir in South Boston for \$500,000, taking ten per cent. of my pay in stock.

Mr. Bartlett then put in a calculation to show that Spot Pond would furnish 3,364,000 gallons daily.

PATRICK T. JACKSON has been connected with the use of water power for 33 years. Was one of the Commissioners of 1844. Have paid a good deal of attention to the subject of introducing water. We were only directed to report on the best mode of bringing water from Long Pond. If I were made a Commissioner to bring in water from the best source,

I should not make up opinion as to what the best source was, without examining for myself.

The investigation made by the Commission as to the quantity of water in Long Pond is such as is quite satisfactory to me. I have no doubt that there is quite as much water there as is estimated by the report.

I did sign a circular proposing a company to bring water from Spot Pond. I thought the estimates for damages and crossing the channel too low, but I thought the iron at 2½ cents a pound was so much too high as to balance it.

I consider the amount estimated for land damages and water damages and for reservoirs in Boston very uncertain. It is impossible to make accurate calculations on such subjects. We allowed about four times what we thought they were worth.

Cross-examined. Disregarding the land damages and the rise in price of iron, I have no doubt that the Long Pond aqueduct could be built for the estimate in the report of 1844.

By Committee. I never went to Spot Pond but once. Then I took no measurement. I only know its size from the report of 1838. I had great confidence in the report of 1838;—but it has been shaken by what Mr. Brimmer told me and what he has testified to here about the low condition of the water last summer.

The evidence was closed with the testimony of this witness.

B. R. CURTIS, Esq. who represented the Middlesex Canal made the closing argument in its behalf. [Some discussion arose before he commenced upon his proposal that the counsel for the city should inform him what grounds they proposed to take with regard to the positions of the canal. Mr. Fletcher maintained that the city could not be required to look at the canal differently from the other remonstrants, but stated that they should object to putting the city under any obligations to the canal, and should maintain that the damage to the canal would be small. Mr. F. added in reply to a question from Mr. Curtis, that he was not prepared to admit that the canal had the legal power and right to transfer its water rights to the city, so that they might be used by the latter in settling any controversy with the mill owners.]

Mr. Curtis then commenced his argument. The canal came here indeed to show cause why the request of the city should not be granted, but it was willing that that request should be granted if its own rights were protected. The

question that arose was whether the Legislature would not insert a provision for this protection in any law they might pass in accordance with the petition.

There were certain facts which were beyond dispute as between the city and the canal:—

First: that the use of the waters of Long Pond was now enjoyed by the Middlesex Canal,

Secondly: that the quantity of this water was large and important,—which was shown by the city's saying that it was sufficient for its full supply,

Thirdly, that this water was essential to the profitable and convenient use of the canal if not replaced from other sources, and

Fourthly, that this water was already *devoted to a public use*.

The question was whether the Legislature would thus take property already devoted to a public use for the purpose of devoting it to another. He did not deny the constitutional power of the Legislature to do this, but contended that those who asked for it must make out that a case of extreme urgency and necessity existed. To this point he cited the opinion of the Supreme Court (23 Pickering's Reports 393) in the case of the Boston Water Power Co. vs. the Boston & Worcester R. R. The power of eminent domain was only to be exercised in an extreme case and upon the payment of a full equivalent for the property taken. The Committee ought therefore to inquire if it were proper to take the property of the canal against its will, when it was willing to give up this property upon reasonable terms.

The canal was incorporated in 1793 and established by a number of public spirited individuals. It was not completed for many years and it was longer still before it became at all profitable, no dividends having been made until the year 1819. Most of the original holders however persevered in the enterprise and the stock remained in their hands. It was from that time profitable until the construction of the Lowell Railroad which greatly diminished its value. It had always seemed to him a great mistake both on the part of the Commonwealth and that of the Railroad that no provision was made for compensating the canal for this injury. It was a road directly parallel to the course of the canal, having and intended to have a direct effect upon its business. It was a case where an existing franchise was directly affected by the grant of a new one. The principle was hurtful to the Railroad itself. The State of New York compels Railroad com-

panies to compensate parallel turnpikes and canals for the injury done to their business. This however had not been the policy of Massachusetts, and the construction of the Railroad reduced the value of the canal one-third at once. The construction of the Nashua and Lowell Railroad soon after had a similar effect, and the extension of the road to Concord N. H. still farther injured the property. The Middlesex Canal did not come there to complain; but it was the duty of the Legislature to see whether farther injury should be inflicted upon it and to provide it all reasonable and just protection.

It was said that the Middlesex Canal stood here in the same position as any other party whose property was liable to be injured by the proposed work—for instance a mill owner—and must seek its remedies in the same way. But there were broad distinctions between the case of the canal and others.

First, the magnitude and value of the work. There had been discouraging circumstances in 1843 which had led the proprietors to underrate the value of the canal, and they then applied for leave to change the mode of using their property. But time had proved that they were then mistaken and that it was really profitable and worth while for them to carry on their canal as such. During the past year their net income had been \$9000, (they had divided \$8000 and reserved \$1000) which would represent a property of \$150,000.

Secondly: Their property was now held for a public use and it was important to the public that it should continue to be employed in that manner. Even in the year when they received no income, 6000 boats passed over the canal, and of course now that it was so profitable it was used by a still greater amount of navigation.

Thirdly: If the request of the canal were complied with all the water would be used in the most advantageous manner to all parties concerned. The mill owners would be as well off as they are now, and no party would suffer any unnecessary damage. If this proposal was not accepted the canal would be entirely crippled and the mill owners would have large claims for damages,—how large it was impossible to foresee. This seemed to be a strong reason to warrant the Legislature in putting into the act the provisions proposed.

What the canal asked was simply to be compensated for withdrawing all the water from the canal, and to be compensated for it either according to such bargain as it might make with the city, or according to the award of Commissioners.

If the canal were nearly worthless as was represented there would of course be very little for the city to pay. The less valuable it was the less expensive it would be for the city to pay this, and have the whole water now used in it to set up against the claims of the mill owners.

Only two objections which might be raised to this course on the part of the city occurred to him. The first was that the canal had not the right to dispose of the water in this way, because it held it for a particular public use, and that when that use ceased the property in it would revert to the mill owners. But where property had been under the authority of law taken for a public use, and paid for, it was competent afterwards to change that use. As if the Commonwealth should take land for an arsenal and pay for it, and afterwards change the building so as to use it for a hospital, or should sell the land, its property would be sufficient for either of these purposes. The full property of the land being acquired it carried with it all the incidents of property, among which was the right of transfer or sale. Where an *easement* only was taken, the right of property would cease when the use ceased, for the original property is only coextensive with use.

To apply these principles to the case of the canal—It had taken and paid for the right to divert the water of Concord River. It made no difference to the mill owners below to what use the water was converted. Suppose that the franchise should extend—as in fact it did in this case—to the double purpose of making a canal and running mills. The Corporation take Concord river and apply it to the construction of their Canal and the supply of their water power. They have a right to do so. They increase their mills; they are still in the right—they discontinue their canal in order to afford water to these mills;—they are still doing what they have a right to do, nothing that they may not do under a perpetual charter to divert the waters of Concord River. Their right is as perfect as that of a person holding property in fee.

Mr. Curtis in support of this doctrine referred to the case of Wellington petitioners *vs.* the town of Cambridge (16 Pickering 87) and that of the Water Power Co. *vs.* B. & W. R. R. (23 Pick. 360.)

He also referred to the act of the last session in favor of the Blackstone Canal, to show that the Legislature might change the use of the water rights, and the bill reported (by

Judge Strong) at the same Session in favor of the Middlesex Canal, to show *his* opinion of the validity of the doctrine.

In fact the canal held its present property not by its taking under the Charter, but as by a grant. It had no deed, but an undisputed possession for over forty years amounted to a grant in fee of the right to divert the waters of Concord River. He requested the Committee to consider seriously whether this was not a case where the rights of the Middlesex Canal ought to be protected and where some course ought to be devised so that it should not be driven to a jury to assess the damages done to it by the proposed work.

Mr. Curtis having but a few words more to say, the Committee adjourned to meet the same afternoon.

TWENTY-SECOND SESSION. *Wednesday, March 5th, 1845.*

MR. CURTIS closed his remarks on behalf of the Middlesex Canal, by referring to the proposal to supply the water of Concord River from other sources. The means of furnishing this supply had only been indefinitely alluded to and had only been shown to exist by evidence at second hand. Magog Pond, one of these sources already belonged to Mr. Whipple who might have used it to supply his mills for which water had been needed could it be advantageously applied to such a purpose. The other source which had been pointed out was in Hopkinton above the Saxonville Factory; and it was natural to suppose that if it were available for such a purpose it would have been already used for that factory which was in want of water and had supplied its deficient power with steam.

WM. J. HUBBARD, Esq. closed the case on behalf of the remonstrants.

He did not intend to go over the details of the evidence on this matter which would undoubtedly be weighed by the Committee. He wished to draw their attention only to some of the points in controversy. The object of the petition was one of great interest to Boston—both to the city as such, and to its inhabitants, who had a right to have such an object accomplished in the most prudent manner. It also concerned other towns and their inhabitants, who apprehended that their rights were about to be encroached upon, and that they should suffer damage for which no adequate compensation could be made. He appeared on behalf of those who had signed the remonstrance called that “of Joseph Tilden and others,” who thought that if the project were executed in the manner proposed, it would involve a needlessly large ex-

penditure of money, bring upon the city a heavy debt, and subject them and coming generations to an onerous taxation to pay the annual interest on the debt, which would not for many years, if ever, be met by the income from water rents.

The powers which the Mayor in his petition asked to have granted to the city were by no means simple. They were in fact, *first*, the power to take lands belonging to citizens of other towns without their consent, and against their will—to destroy their mill privileges—to divert streams from their natural courses—and as a necessary consequence, to render nearly valueless large amounts of property, the profitable improvement of which depended upon the continuance of the manufacturing establishments erected on those streams and privileges. *Secondly*, the power of taxation to raise the money necessary for these objects.

This last request was one made necessary by the fact that the power of the city as such did not extend to the building of an aqueduct. This was not a part of the intent of its Municipal Charter (Rev. Statutes ch. 15. sec. 12. *Willard vs. Newburyport*, 12 Pickering 227, *Stetson vs. Kempton*, 13 Mass. Rep. 272; *Spaulding vs. the Inhabitants of Lowell*, 23 Pick. 76.) Neither law nor usage made this an object which a town as such could undertake to effect. The size and importance of the city did not give it a greater right in this respect than the smallest municipal corporation. That a new power for the purposes of taxation was required had been allowed by the City Solicitor in a letter to the Mayor on this very subject. (City Doc. January 29, 1838.)

The City Government in asking the Legislature for such extensive powers,—the right of eminent domain and the right to raise money for a purpose not now authorized by law—ought to convince the Legislature that a plain and strong case of urgent necessity existed, requiring that such powers should be granted; and even if a very large majority of the voters in the city asked for these powers, the Legislature would not be the less bound to guard the rights and interests of the minority.

The petitioners were bound to make out four points, viz;—1st that there was not now an adequate supply of water in the city to meet its actual necessities; secondly, that these actual necessities required additional corporate powers for their supply; thirdly, that they required such extensive additional powers as were asked for; and fourthly, that the proposed plan was the best and wisest for the purpose for which it was designed. The ground that the votes of the

petitioners were the best evidence of the want could not be sustained; if it were so, Legislative Committees might be discharged from most of their investigations. Neither was the vote of "the citizens of Boston in general meeting assembled" always to be considered evidence of the wisdom or necessity of what it recommended; as might be seen by votes of 1829 and 1830, urging by large majorities that either the State—or if not the State the City—should construct two railroads one from Boston to the Western line of the State and the other from Boston to Pawtucket. The Committee of the Legislature to whom the petition founded upon these votes was referred, reported that the petitioners have leave to withdraw, and that report was accepted, and this conclusion was a wise one, that the action of the citizens of Boston and the declaration of their wishes or opinions, was entitled to no more weight as evidence of the necessity or wisdom of any measure, than the actions or declarations of any other set of men, in regard to any object which they desired to accomplish.

Admitting that the rebutting evidence offered by the petitioners had proved that there was some want of water, it did not follow that the second proposition was made out, that new corporate powers were needed by the city in order to supply this want. On this point those whom he represented took this ground in their remonstrance:—

"Your Memorialists also represent, that while they admit that the wants of certain parts of the peninsular portion of the city require the introduction of a copious supply of pure soft water,—they feel a confident assurance that those wants can be adequately supplied by a private corporation, at a much smaller expenditure than it can be done by the city. And they have no doubt that if a charter should be granted with suitable provisions, the necessary funds would be speedily raised to construct an aqueduct, which with the one now in operation, will be amply adequate to supply the existing wants of the city and its increasing wants for many years to come. Your Memorialists therefore deem it an impolitic and wasteful expenditure of money to introduce a colossal aqueduct, whose magnificent provisions are to suffice for the city when its inhabitants shall number 300,000, when a comparatively small expenditure will furnish an aqueduct which, with the supply of water now enjoyed, will abundantly meet the wants of the city for half a century—leaving a distant posterity to make some provision for their own wants."

In support of the opinion that a private corporation was the proper resource to supply this want, he cited Mr. Quin-

cy's report as Mayor, (June 13th, 1825,) and Mayor Armstrong's Report as Chairman of the Committee on this subject in 1836. Most cities which had foreign supplies of water,—for instance, London, Liverpool, Greenock and Glasgow,—were supplied by private corporations, and the remonstrants were of opinion that this mode of supply had decided advantages. They believed it could thus be done more economically than by the city—the city would incur no risk of loss—those who wanted water, would alone pay for it; and if it proved a profitable undertaking, the city would have the power to take it from the company by paying them a reasonable compensation; and if the city should decline taking it, the citizens would be safe against imposition or extortion on the part of the company, by the provision in their charter authorizing the Legislature to regulate the prices of water.

The next question was—all the rest being granted—were so large an expenditure and so great powers needed? In the words of some of the former petitioners, this work ought not to be undertaken until it was practicable, “consistently with prudence and reasonable economy.” He did not think that the evidence showed that the *natural wants* of the citizens required so immense a supply. Much of the “want” spoken of was for the *artificial* wants for manufacturing purposes and the like, and for luxuries. If there were such a want, it was not one which had been long discovered, and the history of the action on the subject which had been appealed to, showed rather a disinclination to enter upon any such enterprise than the contrary.

Mr. Hubbard then recapitulated, with this view, the history of the various movements on this subject, since the organization of the city government, and then briefly summed up the evidence in the case, to show that it did not prove such a want as to require the supply asked for. He contended that the plan proposed was based upon a greatly exaggerated estimate of the amount of supply needed, both in respect to the nature of the wants for which provision ought to be made, and the amount of supply which would be needed to meet those wants. It did not look only to a supply of the present wants, but proposed that provision should be made immediately for the wants of the city half a century hence, when, according to the Commissioners, the population of the city, including South Boston and East Boston, would be 215,000; and this supply they thought should be 7,000,000 gallons. He thought that the proper course to be pursued was that suggested by Mayor Chapman in his testimony, which was

similar to that recommended by the Water Committee of 1839, in the report made by Mayor Eliot, viz: to provide for existing wants and growing wants within a reasonable time, and by a plan which should be capable of enlargement, to meet the growing wants of the city in the distant future.

He should endeavor to establish that an adequate supply of good water might be procured at less expense than by the plan reported by the Commissioners, from nearer sources, (thus decreasing the risk,) and by a safe mode of construction, (iron pipes.) He should only direct the attention of the Committee to two plans. 1st. Taking Spot Pond as the principal source of supply, with Mystic Pond as a supplemental source when the increased want of the city should require it; and 2d, taking Charles River as the sole source of supply.

Mr. Hubbard went, in some detail, into the examination of the advantages of the several sources, citing the reports for analyses of the water, expense of construction, &c. ; but before he completed his argument, the Committee adjourned to meet again the next morning.

TWENTY-FOURTH SESSION. *Friday, March 7, 1845.*

Mr. HUBBARD resumed his argument on behalf of the remonstrants, by reviewing the action of the City Government on this matter, in order to show that it had never expressed any deliberate opinion in behalf of the proposed measure.

An explanation with regard to some points of this review was made by Mr. Edward Brooks, of the Citizens' Committee.

Mr. Hubbard contended that the course of action during the past year, both of the citizens and the City Government, was characterized by haste and the want of such deliberation and investigation as the subject required, and that it afforded no sufficient evidence that the public necessity or the public interest required that authority should be granted to carry out the proposed plan. It had been suggested that the Committee might decide to report a bill in accordance with the wishes of the petitioners, and leave it to the city hereafter to determine whether it would avail itself of the authority given it to execute the proposed project. He urged that such a course would not be in accordance with established legislative usage, and that the Committee should not report a bill, unless the evidence submitted had been sufficient to satisfy their own judgments that the proposed measure was necessary and expedient, and that the interests of the city would be advanced by its adoption. He requested the Committee to consider whether they could adopt a wiser course than that taken by the Legisla-

ture of 1839, whose resolve on this subject, expressed the opinion that it had not sufficient evidence to enable it to decide upon the proper source and best mode of supply for the wants of the city. It did not seem to him that the petitioners had made out a sufficient case to call for the exercise of the powers the Legislature was asked to use. It was not reasonable to ask for a present supply for the wants of half a century hence, or for exaggerated demands of the present population. An adequate supply for all rational wants would be furnished by a private corporation, and then if that establishment should prove a profitable one, the city might take it into its own hands.

Mr. Hubbard closed by asking to be excused if the heat of argument had led him into too harsh censure of men or measures.

RICHARD FLETCHER, Esq. closed the case on behalf of the petitioners. He said that the simple question submitted to the Committee was whether there should be a grant of the needful power to supply the City of Boston with pure and wholesome water. Although this question was so simple, however, and so easily stated, it was one of no ordinary importance. A question of deeper, or more serious interest was rarely submitted for legislative consideration and action. It did not relate to pecuniary speculation or enterprise, but to the comfort, health and lives of a large portion of the people of the Commonwealth. The want of pure and wholesome water was one that pressed not occasionally, or at intervals, but marred the comfort, and perilled the health and life of every living being, every hour and every minute. When a hundred thousand people, under the pressure of this want, come to the Legislature for aid and relief, it presented a subject which rose in importance far above the ordinary topics of legislative attention. It seemed to him that the remonstrants and their counsel had signally failed in their conceptions of the nature of this subject. It was not to be placed in the same list with applications for railroads. A great want, like this, for water, the natural demands for bread, water and vital air, were not to be treated as the factitious and artificial wants of society were; and most of the topics suggested, in reply to the question, ranged altogether below the real importance of the petition. The struggle to supply such a want was not to be baffled and defeated by professional skill and tactics, and objections to form and circumstance, or by speculations, plans and theories. Suppose that a famine were desolating the city, and a plan of relief had been agreed upon, as by gen-

eral consent, what would be thought of the objection that it would provide too much bread, or from the wrong place? or that the carts and transportation would cost too much? And yet this was a wasting famine. If such a want existed as was alleged, it must be supplied. It was in its very nature a want that would seek relief; must and would find relief. It would not be balked. That it did exist seemed manifest and undeniable; and that the people of this city had been struggling under this want for more than twenty years. As the population had increased, the want had increased, till it had now arrived at such a degree of urgency that it must and would have relief; it sought relief lawfully and properly, but it must and would be relieved.

The inability to obtain a sufficient supply of pure and wholesome water within its own limits, was by no means peculiar to the City of Boston. It had occurred to other cities in all ages, and the employment of sources of supply from abroad, with aqueducts connecting these with the city, commencing beyond the Christian Era, and coming down to our own time, existed all over the civilized world. In our own day and country, these works had been constructed in Philadelphia, New York, Richmond, and other places; and wherever they were, we found that at whatever cost or sacrifices, they had been built, and however many mistakes and delays had occurred in their construction, they were clung to by the people with such a force of attachment, that nothing would compel them to give them up. The Croton aqueduct in New York had approved itself to the most intelligent and the most wealthy inhabitants, and nothing would now induce them to part with its benefits.

That this necessity for a foreign supply of water would occur, might have been foreseen from the time of the settlement of the city, and it was amusing that the people of Boston, suffering under this great want, should be told that history showed that they were living in the midst of an abundant supply of pure water, and should be consoled by the statement that the original name of their territory meant "abounding in springs,"—a statement in itself apocryphal. The probable necessity of such a supply might have been seen from the settlement of the city, for there were many things incident to a crowded city, that precluded the possibility of procuring a sufficient quantity of pure water within its limits. What then must the inhabitants of Boston—parched as they were—show to their rulers to insure the grant of the powers asked for.

They must show : first, the existence of the want, and next, only, that the plan proposed was practicable and reasonable. He denied that they were bound to show anything else. They asked for a particular plan, and the Legislature must either grant that or not. They could not be compelled to show that this was the best possible plan, beyond a reasonable doubt, as if they were making out a criminal charge. The Legislature would go into no such inquiry. It would require it to be made to appear that the plan was practicable and reasonable, but it might well leave something to the discretion of the petitioners. The city might never get a supply of water if compelled to prove that one or another plan was the best possible plan. There was no pond or river as a source, no system of pipes or masonry as a means, to which some objection could not be found. These particulars and details must therefore be left to the discretion of the city. There was no objection to having the matter go back to the citizens. The act must be accepted by them and if they were satisfied with the source, the cost and the plan, and were willing to pay for the water in that way, who was to object? The Legislature? He did not think so, or that the Committee would think so. They would require that the plan should appear to be practicable and reasonable, and that was all.

First, as to the *want*; it must be shown to exist. It was admitted even by the remonstrants that it existed to some extent, but it was material that what that extent was should be somewhat fully defined and understood. He maintained that it was to a *great* extent, pressing and urgent. How were the wants of a community,—of a city or town,—to be ascertained? How was such a want as this of water to be discovered or proved? The opinions of individuals, themselves well supplied, and who had no particular means of knowing the wants of others could be of but little weight. The remonstrants had called before the Committee, several respectable individuals, all of whom had testified to the existence of a partial want; and he (Mr. F.) thought the weight of their testimony was that there was a necessity for procuring an additional supply from some source without the city. But this gave nothing but the general fact; the extent of the want was still not defined.

[At this point of the argument the Committee adjourned to meet in the afternoon of the same day.]

TWENTY-FIFTH SESSION. *Friday, March 7th, 1845.*

MR. FLETCHER *resumed*: The best and perhaps the only way to get at the real extent of this want was to look at the efforts made to relieve it. This was the way in which communities manifested their wants. In some countries the existence of

a want like this would have been shown by riots and violence. Here we had the different course of resorting to petitions and to the ballot box. Exertions of this kind clearly showed the existence of a want, and their generality proved the generality of a want. The declarations of the citizens to their constituted authorities, accompanying their acts were a part of the *res gestae* and were stringent evidence in such a case. He therefore briefly reviewed the history of movements upon this subject.

The Jamaica Pond aqueduct was established in 1795 showing that there was a necessity to go out of the peninsula for its supply of water half a century ago. It had been said that no account had been made at this hearing of the existence of such a work. It had been referred to, but the evidence was sufficient to show that it was already used to the full extent of its powers of supply.

In 1816, Mr. Alger testified that he and others had taken some measures to introduce water into the city from Spot Pond—which showed that even at that early date this want was felt.

In 1825, we found the government of the city—now organized as such,—inquiring into the practicability, expense and expediency of introducing water from abroad. And that this was a movement of the government showed that it was a result of a general want and desire on the part of the whole city. Mr. Treadwell was appointed to make this examination and made his report the next year; wisely advocating an enlarged work that should be sufficient for future years, and should not be confined to the mere temporary want. Mr. Quincy as Chairman of the Water Committee urged further that the work should be done and done by the city as such.

In 1827, (February 1,) Mr. Odiorne made his proposal to supply the city with water, which was referred to a Committee who reported adversely on the 12th of November of the same year.

Some years then passed until 1832, in which year a Committee was appointed (January 9th,) of which the Chairman, Mayor Wells, reported, (December 31st,) that there was then “no difficulty in the way of carrying out *the favorite object* of introducing a supply of water for the general use of the inhabitants and the extinguishment of fire.” He urged in that report the utility and practicability of the proposed scheme, referring to Mr. Treadwell’s report as authority, and stated that after mature deliberation the Committee were satisfied that *the health as well as the convenience* of the citizens required that the work should be commenced in the succeeding year. This was in 1832; in 1833 another Committee was appointed, and in March the Mayor was directed to ask for authority from the Legislature to take

land, &c., for such a work, substantially as in the present case. There was some delay, and there was no effective action; but in the fall of this year a petition (that of Warren Dutton and others) was presented to the City Government urging direct and speedy action. In this petition the subscribers said that they acted under a deep impression of the necessity of the proposed supply. They said that they deemed it superfluous to go into the details of the insufficiency or impurity of the water then in use. They spoke of it as a matter of general complaint, and said that it was their belief and that of the community, that if the city did not act promptly, the matter would be taken in hand by private corporations. Mr. Fletcher, read this petition with the names of its signers, remarking that they were highly competent judges and entitled to great respect, and that this paper showed that in their judgment the public mind was decided on having this done, and on having it done by the public authorities. A Committee was appointed upon this petition and upon their report the sum of \$2000 was appropriated for a new Commission, and Mr. Loammi Baldwin was selected to make a further survey and examination of sources. When this Committee reported to the City Government the survey of Mr. Baldwin—a most thorough and capable engineer—they spoke of it as a “minute, full and valuable examination of the whole subject of introducing water, a subject of much interest to the citizens of Boston, which had been long and much discussed and investigated;” they said that the introduction of water from foreign sources was one of those improvements which must be sooner or later adopted in this as in other great cities; they believed that the report of Mr. Baldwin contained all the information which could be desired or obtained; they considered his examination as complete and had great confidence in his judgment; and therefore they said that they could see no reason to suppose that it would ever be necessary to make further surveys for this object. This was as far back as 1834.

In 1835 the petition of Dr. Warren and others urging immediate action was presented to the government, and in the fall of the same year (October 13,) the Mayor, Mr. Lyman, reported a resolution favorably to it, but the city did not act upon it at that time.

In 1836 the citizens rose more *en masse*, and we had the petition (presented January 18,) of Isaac Parker and four hundred and thirty-five others urging that the water was needed, that the cost of introducing it was yearly more expensive, and that measures ought to be taken for its introduction at the public expense or otherwise that very spring. Among the subscribers to this petition were Messrs. Isaac Parker, Cartwright & Balch.

In June of this year Mr. Eddy's report was made (and Mr. F. read from pages 25 and 26 as to the necessity of a supply.)

The same year (August 24,) the Mayor, Mr. Armstrong communicated to the City Council the resolutions adopted at a general meeting of the citizens at Faneuil Hall, advocating the measure, which was adopted by 2107 yeas and 136 nays.

In 1837 a new Commission was appointed to explore and report, consisting of Messrs. Treadwell, Hale and J. F. Baldwin. They reported November 23d, after using constant effort and large means of information. They were divided as to the source which was to be selected; two of them being in favor of Spot Pond, and one in favor of Long Pond.

The Mayor's communication in 1838 recommended an application to the Legislature for powers to construct an aqueduct. He stated the need of an abundant supply and the expediency of beginning upon this work soon (page 4,) and expressed a firm opinion that it would pay for its interest and repairs, (page 5.) Hosts of petitions poured in urging immediate action—among which, since it was urged that that part of the city was well supplied he might notice that, from wards 11 and 12 which speaks of "feeling daily the want of pure water." There were also several remonstrances against the project, but none of them were based upon the absence of the want, but upon the bad times and the crippled and embarrassed state of business and property. The remonstrants then thought the time inauspicious; when prosperity returned they should be glad to join their fellow citizens in this work.

In 1838 the citizens held another public meeting on the subject, at which two questions were presented; and these constant meetings and reports were conclusive evidence that the people had had an opportunity to understand this question. Two questions were submitted to it. On the first,—asking the voters if it were expedient for the city to provide a supply of soft water at the public expense, the vote was 2541 yeas and 1621 nays; on the second: "Is it expedient to begin the work next year if leave be granted?" the vote was 2507 yeas 1652 nays.

In 1839 the Commissioners made their supplemental report, Mr. Baldwin giving his reasons for differing from the others, and maintaining his opinion in favor of Long Pond. An application was made to the Legislature and a bill was reported; but many remonstrances were brought in, and it was recommitted and lost for want of time. The whole evidence was heard on the part of the remonstrants but there was not time to finish the case on the part of the petitioners. In his communication of April 29th, of that year (City Documents of 1839, No. 19,) Mayor Eliot gave a detailed account of this examination. He

then argued that it was not necessary for the petitioners to go into any such proof. He urged that it was enough to show that it would contribute to the health, comfort and temperance of the people. As to the financial question he calculated that even if the work cost \$4,500,000, its benefit to the city would be worth the interest on that sum, while he did not doubt that the water-rents would pay off the loan.

After this commenced Mr. Chapman's administration, which was emphatically a reign of economy. In 1840 and 1841, a Committee was appointed, as usual, but no progress was made with this matter. In 1842 nothing at all was done. In 1843, Mr. Odiorne proposed his plan for supplying water from Spot Pond, by a private corporation, and a Committee of the City Government reported favorably to it, but it was not finally adopted.

This brought us to the year 1844. There was pending before the Legislature in 1843, the plan of Mr. Eddy to bring a supply of water from the Middlesex Canal, and that of Mr. Odiorne for Spot Pond. The public opinion was strong and decided, that this supply ought not to be in the hands of individuals or private corporations, but should be brought in by public expense. Seeing these proceedings pending, a petition was presented, (Pet. of John Redman and others,) asking the City Government to call a meeting of citizens in Faneuil Hall, to consider the subject. This was not done at that time, but a subsequent petition (that of Walter Channing and others) was granted, the meeting was called and adjourned from day to day, and the whole subject was thoroughly discussed, from September to December. These meetings were not large, but they were open; every one might go, and every one might speak who chose, and the result was that there was a strong vote in favor of introducing the water at the city expense, and requesting the City Government to apply for leave from the Legislature, as soon as might be. At the time of the fall elections, the most favorable opportunity for obtaining a full expression of the opinion of the voters, propositions were submitted, the result of which had been stated there. It was the largest majority ever given on any occasion by the votes of the citizens. Eight-ninths were in favor of bringing in the water at the public expense, and the vote was three to one in favor of Long Pond as a source. Unquestionably this was the true sense of the people of Boston, and had been for years. This decisive vote would prevent an attempt to accomplish the object by individual enterprise; and public opinion had now so settled down upon Long Pond, as the proper source, that if the present petition were denied, all would be thrown into confusion, and it would be impossible to concentrate action upon any other plan of supply.

Such was the evidence of the want of water, resulting from the votes and measures of the inhabitants of Boston during a long period of time. In support of this the petitioners had introduced that of a few individuals, and they would have brought more but for the intimation of the Committee that more were unnecessary,—persons familiar with the city and its wants, who had fully corroborated this. [Mr. F. here briefly recapitulated the evidence.] The result of all this was that there was a great and general, and constantly increasing want of water in the city ; a want that must be supplied ; not partial and indefinite, but a want felt by all persons at all times. If it were smaller, the Legislature should grant the supply asked for. People ought not to be put on short allowance of this necessary of life, but from dire necessity. It was no answer to tell them that they could possibly *get along* as they were, and that they would not actually perish without a further supply. They should have it freely and liberally, and without stint. A kind Providence had made ample provisions for all ; and all should have it in abundance. It should be seen all about us—in fountains before the State House, on the people's Common, in the public squares, it should be like the air we breathe, everywhere, in doors and out of doors, ministering to the comfort, cleanliness and health of every living thing. If the people, now limited to a scanty supply of impure water, could but once know the blessedness of an abundant supply of pure water,—of the little band who now oppose this measure, there could not a man be found, who would undertake to utter a single word against it,—even by attorney.

Mr. Fletcher then passed to the objections that had been made to granting the prayer of the petition. It had been said that the people did not understand the propositions submitted to them, and some evidence had been introduced that individuals had changed their minds since the vote. This cry that the people “ did not understand ” was one which was a reproach to the institutions under which we live, founded on the principle that the people do understand their own affairs, and act understandingly. The votes upon these propositions showed that the people did understand them, because there was perfect consistency in those on the several propositions. The vote of South Boston, the best supplied ward, was against the plan. How did this happen if the people did not understand ? In fact this was the common complaint of a defeated party. The man who loses his case is sure that the jury didn't understand it, and that the judge didn't understand it ; and if that Committee should report against the remonstrants, the next cry that we should hear would be that the Committee didn't understand !

Then it seemed to be implied that this was an excited move-

ment, and by people who would not have to pay if the work were carried on. If this were so, and a line of division had been drawn between the rich and the poor, it must have been that the rich were to blame, and the possessors of property had been unfaithful to their trust. This division could never be until the rich had forfeited their natural and rightful influence, by neglecting the duties which attached to their position. But it was not so. The little book of amounts of taxes which the remonstrants had put into the case, would prove that the wealth of the city was arrayed in favor of the measure. Wards seven and four, the two richest wards, had given strong and decided votes in its favor. Most of the large tax payers were in favor of it, and with the noble public spirit which eminently characterised the men of wealth of the city, had advocated this project, not as an advantage merely to themselves, but to all. Some few individuals,—few compared to the whole number,—held different views and opinions with regard to the measure. He could only say to these gentlemen, that they had fallen into a great error; and that the time would assuredly come when no man would take either pride or pleasure in the reflection that he opposed the introduction of water into the City of Boston.

It was next said that the city had no power to tax for this purpose. Undoubtedly the jurisdiction of the city was limited, and there were cases in which towns had levied taxes beyond their powers, and the payment of such taxes had been successfully resisted. But a town might raise money to pay a fire department, and buy fire engines, (19 Pick. 488.) So it might build a market house. The tax levied to build the market house in Lowell was contested by a tax payer, and the court held that the city had power to build it, and to raise money for the purpose. To provide water for its inhabitants, was certainly as much the province of a city, as to provide a market house. But if there were any doubt upon this point, the Legislature could undoubtedly give the power. The question was nothing like that to which it had been compared, of asking for leave to tax for the purpose of investing the money in a railroad. He apprehended that the Legislature would find no objection to granting the requisite power. It had been said that there was no precedent for authorizing the taking of private property for such a purpose. But there were repeated instances where towns and other corporations had been authorized to take land, and he could see no difference between that and the authority to take water. But there were two instances where leave had been granted to take water also. That of the aqueduct to supply the Hospital at Worcester, and the recent act incorporating the Boston Hydraulic Company. He had no doubt that this was one of the

cases of public exigency, where the Legislature might exercise the right of eminent domain. If there were any case for it, it was this, and no objection to it came from any person whose property would be directly taken, on the whole line from the fountain head to the city.

This concluded what he had to say upon the first point to be made out, and he thought that the Committee would feel satisfied that there was a great, pressing and urgent want, for the whole city.

The next and only question remaining was : Was the plan proposed for supplying this want practicable and reasonable ? If it were, he thought that the petitioners had established all that was necessary for their case. To show that the plan had not been adopted without consideration, Mr. F. reviewed the history of the proceedings since the survey of Loammi Baldwin, in 1834, to show that Long Pond had not been selected as a source without sufficient investigation and deliberation. The citizens had now adopted it by a vote of three to one. If this was not a reasonable and practicable plan which they had thus settled down upon, with such an approach to unanimity, after the exertions of so many years, it was hard to see how one was to be found. To refuse the powers now granted, would be to defeat the object entirely. Why then should the city not have the needful power ?

There were objections made to this plan of course. There never was a public improvement made without opposition, and the most successful and useful works had often met with the most opposition. Such was the case with the N. Y. Canal, the project for the Worcester Railroad, and the Western ; and perhaps the greatest wonder was in this case, that the number of opponents was so small. So great an unanimity in favor of this plan was almost conclusive at least of the generality of the want.

The opponents might be divided into two classes ; the remonstrants from Boston itself, and those out of Boston, who were apprehensive that their property would be injured by the proposed work. With regard to each class, he should content himself with some general remarks, without answering their objections in detail.

The several objections made by the Boston remonstrants all went to the whole object, for it was clear that the plan proposed must be adopted or none, and therefore though these might seem to be mere objections of form, they went necessarily to defeat the whole scheme. First, it was said that the proposed supply was too large. But the estimate had been made with care, and had ripened up to its present quantity, by the increasing information of successive years. It had been urged with much detail that the population had been set too high ; yet nothing could be plain-

er than that Boston was hereafter to be a large and extensive city. It was at this moment increasing very rapidly. It had doubled in population in the last twenty years, had now nearly 120,000 inhabitants, and was doubtless now increasing at a rate which would double that number again in less than twenty years. In that time it was more than probable it would have the whole 215,000 estimated for ; and would it be wise to construct such a work so as to satisfy the wants of less than twenty years ?

Next, it was said that the expense would be greater than was supposed. Could not the estimates of Messrs. Hale, Jackson and Baldwin be depended upon ? They had made them with great care and deliberation ; had gone to New York, and there and elsewhere taken great pains to possess themselves of all available and proper means of forming safe opinions ; they had put up the estimates largely, in order to make allowances for unexpected increase in prices or the like ; had estimated the damages at fourfold what they considered the real injury that would be caused ; and they now testified that they believed the estimates to be amply sufficient. Could there then be any fact in this objection ?

But he would take a simple test, which was quite satisfactory to his own mind. The New York aqueduct had cost \$11,000,000, deducting the accumulated interest, which made it \$13,000,000. That aqueduct was twice the length of the one proposed here, which might therefore be built in the same way for five and a half millions. But this structure was less than half the size being intended to bring less than half the amount of water. This would reduce the cost to two and three-fourths millions. And if then we took the difference between the country through which the two structures were carried, and recollected that there had been large over expenditures in New York from mistakes of constructions that could now be avoided, and that their damages for passing through villages and over valuable land were necessarily much greater than ours could be, it seemed to be almost matter of demonstration that the estimate of our commissioners was too high rather than too low.

Then it was said that the proposed structure was not sufficient ; that we ought to have iron pipes ; that the city ought to have employed the engineers of the Croton work—and this with some inconsistency when it had been so much urged that those engineers made such very unsatisfactory estimates of the cost of their own structure ;—and that we had not deliberated long enough, that they began in New York in 1799. That long delay in New York it seemed only resulted in error. We hoped that we had got the truth partly through that experience. Our Commissioners had had the advantage of what was known by

the engineers and men of science who built that work, and they were satisfied of the sufficiency of the structure proposed. Where was the evidence that could control this of the Commissioners upon this point? He need not go into details, for the Committee would certainly not undertake to decide whether this were the best and cheapest plan or not. It was only necessary to show that due care had been taken, and that a reasonable and practicable plan had been arrived at. After all, the details of this report were not conclusive, any necessary changes in the practical execution of the work could be made when the time arrived for its construction.

Another objection was that the water ought to be brought from another source. To this the only necessary answer was that we had decided upon this. If we had taken any other it would have been equally objected that it was not the right one. When the city asked for Spot Pond the same objection was made. As to Spot Pond he hoped the Committee would read Mr. Baldwin's report. The fact was that the day of Spot Pond had gone by. Those who advocated it were personally interested in it. Private companies had been got up to speculate upon it, and although he was willing that they should make money in any honest way, the people of Boston did not wish to have that money made out of their necessities.

Next it was said that this work ought to be done by private companies. Now the large mass of the population of the city entertained a different opinion. The work would have been done long since by private companies if the people had not been so determined to do it themselves, that those companies were afraid to risk coming into competition with the city. Every where in this country where such supplies had fallen into the hands of private companies it had been a source of disappointment and regret. A parliamentary examination—to a copy of which Mr. F. referred the Committee—had shown that in London great trouble had arisen from this cause. They had there thought to avoid the miseries and evils of permitting a monopoly of water by establishing a number of companies, thinking that competition would reduce the prices. But these companies combined together, each took a particular section of the city, and raised the prices by agreement. The monopoly was worse than before, and one witness said that he had been afraid to attend the commission until compelled, for fear that the company would stop his supply of water. [Mr. Fletcher then read extracts from several reports of Mayor Eliot, strongly urging the advantage of having the aqueduct constructed by the city instead of by individuals or private corporations.]

The objection of the inhabitants of East Boston and propri-

etors of land there was founded upon a false principle. It was not the principle of social life and the municipal compact, without which we could have neither streets, school-houses, fire apparatus or any of the like results of civilized combination of means. In such a community what was for the benefit of one was for the benefit of all.

[At this stage of Mr. Fletcher's argument the Committee adjourned to the next day.]

LAST SESSION. *Saturday Morning, March 8, 1845.*

MR. BARTLETT, at the request of Mr. Hubbard, put in the remonstrance of the Jamaica Pond Aqueduct Company.

MR. FLETCHER resumed his argument :—

The next class of remonstrants were those out of the city. And first was the town of Framingham. It was not directly concerned as supposing that any of its property would be actually destroyed, but looked to the contingent injury it expected from the destruction of two factories. But those two factories would not be destroyed. Mr. Knight who owned one of them was not a remonstrant, his property was valuable to him but he knew how to make good the loss of his water power by taking steam instead, and whatever expense he might be caused, the city would have to remunerate. The town of Framingham would receive no injury. Mr. Knight was even now building a new factory which showed that he did not expect to be disturbed. He undoubtedly expected to be paid for all his actual damage. Then they spoke as if Saxonville was to be destroyed. But the water of Long Pond contributed nothing to Saxonville. Its outlet was some distance below. To be sure the city had asked for the waters of Sudbury River and the adjacent waters. But there was no expectation of wanting Sudbury River for half a century to come if ever. And when they were wanted it would only be the surplus that was required, taking it when high and retaining it in reservoirs for the dry season. The aqueduct could never affect Saxonville. Here was an end of the evils of Framingham. They were wholly groundless and imaginary. Mr. Knight had no such ideas nor the proprietors of the factories on Sudbury River.

How did the case of Middlesex Canal stand? Was it to be destroyed or even much injured? A little more than a year ago its proprietors had said, and put it in writing in their petition to the Legislature, that the Middlesex Canal was no longer of any use to the public or of any value to the proprietors, and they wished to supply it to the city of Boston. But now that the City of Boston wanted Long Pond the value of the canal was much increased, and its prospective value was greater still. The

hearts of its proprietors were cheered and they were indulging in golden prospects. He was glad of this sudden and favorable change, and he was very glad that these apparently fine prospects would not be at all affected by the introduction of water from Long Pond. It appeared that the Commissioners had fully understood the case of the canal and had provided for it, and had estimated the expense of it. Nobody had undertaken to show that the means that they would use to prevent injury to it would not be sufficient.

As to the Concord River mills ; as the Middlesex Canal had the first claim to the water, if that were supplied the mills would be supplied also, and it appeared that the Commissioners had taken this into account.

As to the Jamaica Pond aqueduct, the city had no disposition to injure it. A part of its plan was to make a proper arrangement with that company, to buy it if it should be thought best, and at any rate make it available as far as possible.

These were all the objections made to this particular source, and it appeared as if there were fewer objections to Long Pond than there could be to any other source, and yet the longer the delay should be, the greater would be the damage the introduction of its water would cause. It was said by some that further inquiry was necessary ; but if the powers asked were granted, the subject would go back for the consideration of the citizens, and if there were any reason to believe that new light could be obtained upon the subject, there would be abundant opportunity to make all the inquiry needed.

There was another point that had been alluded to, and that was the expense to the city, and it was objected that it would run the city in debt. Those who moved in this matter were no friends to incurring either public or private debt, but the reasons in favor of this measure seemed to entirely outweigh the objection here. The city might suffer more by a single fire breaking out in its centre, than the whole cost of this work would be. He did not intend to go into the particulars, but in several of the reports of Mr. Eliot, as Mayor, there were careful calculations on the subject, which resulted in the statement that the city would be repaid for the whole outlay, even if it received nothing for the use of the water ; that if the water were furnished to the citizens *free*, the other advantages to the city, as such, would repay the expense. But it was not proposed that the water should be free. The citizens had shown great prudence, moderation and discretion, upon the subject. The people wanted this supply, but they did not want or desire to have it free. If they had come and demanded that it should be brought to them without charge, it would have looked as if there were a design to supply the poor

at the expense of the wealthy. But they did not ask this. In all these public meetings nobody maintained that the water ought to come free of expense. On the contrary, the people had gone throughout on the principle that its use should be paid for. Taking then into consideration all the other advantages, was there any reason to fear that injury would result to the city? Was there any such apparent and palpable injury as to induce the Legislature to overrule the discretion and judgment of the city as to the propriety of incurring a debt to supply this great and pressing want. Here were over a hundred thousand people knocking at their door, and for themselves, and in behalf of those who were to come after them, praying for the boon of pure water, and were there any reasons why this simple prayer should not be granted?

Mr. ADAMS, of Framingham, made a few remarks, urging that a clause should be put into the bill, if any were reported, providing for a payment for any consequential damages that might occur to that town; and the hearing was closed, and the Committee adjourned.

At a subsequent day the Committee made the following Report, accompanied by a Bill.

COMMONWEALTH OF MASSACHUSETTS.

In Senate, March 13, 1845.

The Joint Special Committee, to which was referred the petition of the City of Boston, and also, the Memorial of Edward Brooks and others in aid of the same, praying for authority to introduce into Boston, pure, soft water, from Long Pond, in the towns of Framingham, Natick and Wayland, and the sources adjacent thereto, having attended to the duties of their appointment, respectfully

R E P O R T :

That, immediately, upon their organization, the petitioners were summoned before the Committee, and directed to give notice of the pendency of their petition to all towns, corporations, and persons, known, or supposed to have any interest in the matter of said petition. Said order of notice was made returnable, January the thirtieth, and by the endorsement thereon, appeared to have been duly served. The next day, the Committee met the petitioners and remonstrants and arranged the order of proceeding.

The city appeared by its solicitor, Mr. Pickering, and Messrs. Warren and Fletcher.

The remonstrants represented various interests and somewhat conflicting. Joseph Tilden and others appeared by W. J. Hubbard.

C. Cartwright and others by Derby and Fuller; Spot Pond Corporation by Mr. S. Bartlett; Middlesex Canal by Mr. B. R. Curtis; East Boston by Mr. D. S. Greenough; Concord River Mills by O. W. Whipple; Framingham by Messrs. Adams and Train. Sundry other

remonstrances and memorials were referred to your Committee, urging various objections to the granting the prayer of the petition. The whole number of remonstrants resident in the city was about 1,300.

Your Committee entered upon this investigation, strongly impressed with the magnitude of the object, and with the great, and serious interests involved in its prosecution. From the day of the opening, to the close of the case, your Committee has devoted itself, faithfully, to the consideration of the subject referred. Twenty-five public hearings have been patiently endured, endeavoring to ascertain the true merits of the petitioners' prayer. A latitude of inquiry, much broader than is allowed by courts of justice, has been permitted, in the hope of eliciting the whole truth. The Committee are happy to say, that after much deliberation and interchange of opinion, they are unanimous in the results and conclusions, to which they have arrived.

The simple question, divested of all collateral issues, to be considered by the Legislature, is, 'Is it expedient to confer on the City of Boston, the necessary power, to introduce among her citizens, pure and wholesome water?' The question regards not the purposes of speculation, nor the profitable investment of capital, nor the advancement of private enterprise, but looks, merely, to the health, comfort, security and prosperity of the city. If it shall appear, that there is a great and urgent want of this necessary of life, this element of health, cleanliness and comfort, and that the want can be supplied at reasonable cost, who would withhold the requisite power? The petitioners ask to be empowered to expend their own money, for their own comfort, without inflicting irreparable injuries upon their neighbors. What ought they to show, to entitle them to this grant of power? It seems to your Committee, that they should be required to show, in the first place, a great and increasing want of pure water in the city, and, in the second place, a practicable and reasonable plan of supplying that want. If they succeed in making out these two points to the satisfaction of the General Court, your Committee are

unable to perceive any good reason for denying the prayer of the petition.

What is the present and prospective want of pure, soft water in the City of Boston? This want was attempted to be shown to your Committee, both by oral and documentary evidence. It appeared, that throughout the peninsula generally, wells could be obtained, furnishing a palatable and tolerably pure water, though, on chemical analysis, it is found to contain considerable quantities of saline and earthy substances. The water of these wells is chiefly relied on for drink and the preparation of food, but on account of its hardness, is unfit for washing. In the lower parts of the city, and particularly, the extensive portions of it, reclaimed from the sea, wells can be obtained, only, by sinking them to a great depth, (some are as deep as 140 feet,) and when obtained, the water is of inferior quality.

For all the purposes of washing, reliance is upon rain water, collected in cisterns from the roofs of buildings. This supply is of course liable to a great degree of uncertainty, and for those families, which are not provided with rain water cisterns, the supply is either entirely insufficient, or extremely precarious. The witnesses, as well as the various reports offered in evidence, represent that the ordinary supply of water of both those descriptions, is becoming from year to year, with the increase of population, both more inadequate in quantity, and more impure. The greater accumulation of animal and other impure substances, through which the water supplied from the heavens, must filtrate, for the supply of the springs, and the narrower span to which this filtration is confined, necessarily, deteriorates the character of the well water, and the great quantity of coal which is consumed for domestic and other purposes, the smoke and cinders of which settle on the roofs of buildings in all parts of the city, tends to give a sooty color, taste and odor to the water of the cisterns. It is apparent from this statement, that those families only, who are supplied with wells and rain water cisterns, are possessed of such a supply of water as is deemed necessary for domestic purposes.

The supply of water for other than domestic purposes, such as the extinguishing of fires, the supply of steam engines, baths, the purifying of drains and sewers, and the cleansing of the streets, is still more inadequate. The chief reliance for the extinguishment of fires is upon reservoirs, provided in various parts of the city, the supply of which is found to be entirely insufficient. The fires in Dover street and at the corner of School and Washington streets were referred to, as frightful instances of the destitution of water.

The Boston Aqueduct is the only remaining means of supply. This corporation brings into the city an excellent water from Jamaica Pond, but the source is at so low a level, that the water can be carried to only a limited portion of the city. Though a most valuable resource to those inhabitants, who can avail themselves of it, it is entirely inaccessible to far the greater portion. It was also shown to be entirely unsafe as a reliance in the case of fire, even in parts of the city to which it is introduced.

The remonstrants admit the existence of a partial want of water in certain portions of the city, but deny that it is general or urgent. They profess their willingness that the want should be supplied, but object to the city's embarking in the enterprise. They say it comes fairly within the reach of private or corporate enterprise, and that the want is individual and not collective, and that it ought, therefore, to be supplied at the cost of those who are in need. They object entirely, to the imposition of taxes upon that portion of the citizens who are already supplied, or who object to the proposed mode of supply. They contend that the higher portions of the city proper, and South and East Boston are amply supplied, but they freely concede that the lower levels of the city, especially the reclaimed lands, are poorly supplied. They endeavored to show that every body south of Essex and Boylston streets might, if they would, be well supplied by the water of Jamaica Pond. The evidence however failed, fully to sustain this position. It was testified by the Superintendent of that

Aqueduct, that it could supply that portion of the city 'tolerably well,' yet he admitted, that there were frequent failures, that the water was distributed to the utmost capacity of the fountain, that a reservoir, to secure a quantity against a time of need, was necessary to insure an adequate supply. Beyond this limit it was admitted to be an unreliable source.

It was proved to your Committee that Beacon, Copp's and Fort Hills were very well supplied with well water. Even these favored portions of the city are dependant upon rain water for washing and other purposes, whenever soft water is preferable to hard. The best built parts of the city are generally supplied by means of wells, cisterns and reservoirs for the filtration of rain water. But in many populous portions of the city, large numbers of houses are destitute of one or both of these means of supply. It was also proved that wells which had heretofore afforded an abundant supply, had recently become worthless; other wells in the vicinity having been sunk below the level, on which they rested.

The long acknowledged and generally pervading want of water, was attempted to be shown by certain acts of the City Government, and the circumstances therewith connected. It appeared that, during the last twenty years, this subject, the want of pure, soft water, had, from time to time, been brought into public discussion, in a great variety of ways. The expediency of providing a supply has frequently occupied the attention of the City Council. The city authorities have constituted several commissions for the purpose of ascertaining the best source, or sources of supply. Their reports, embodying a fund of information on this subject, are before the people. It is hardly supposable that any eligible source has escaped the attention of the Commissioners, and remains yet, to be discovered. The city authorities, therefore, are as well qualified to act on this great subject now, as they ever can be.

As early as 1795, the Boston Aqueduct Company was incorporated for the purpose of bringing into the city, the water of Jamaica Pond, in Roxbury, thus declaring

there was a natural deficiency of soft water in the city. In 1816, Cyrus Alger and others, contemplated bringing in water from Spot Pond in Stoneham, proving both the existence of a want, and the inadequacy of the supply by the Boston Aqueduct Company. In May, 1825, a commission was constituted by the City Government, to make explorations and surveys, and inquire into the practicability and expense of introducing soft water into the city. Mr. Treadwell the Commissioner, says, "there can be no question concerning the practicability or expediency of bringing in pure, soft water, and that it ought to be done by the city." In 1826, a Committee of the Common Council was charged with this subject. In 1827, the proprietors of Spot Pond made proposals to the City Government to supply the city with water. The proposals were not accepted, on the ground that it ought to be done by the city, at its proper cost and charge. In 1832, Mr. Wells being Mayor, the subject underwent a new and thorough examination. He reports "that the health as well as the convenience of the citizens, requires the work to be commenced the ensuing year." In 1833, in March, the Mayor was directed, in behalf of the City Government, to petition the Legislature then in session, for a grant of the requisite power to bring in water, but so much of the session had passed that the necessary preliminaries, orders of notice, &c., could not be properly made,—the petition was therefore referred to the next General Court. In December, 1833, the requisite notices were given, agreeably to the statutes, that the matter would be pursued at the coming session. This same year, Col. Loammi Baldwin, by appointment of the city authorities, made a minute, full and valuable survey and report, of the whole matter. He speaks of Long Pond as an available and proper source of supply, though he does not give that the exclusive preference. In 1835, Dr. Warren and others memorialized the City Government on the subject. In 1836, a town meeting, holden for the purpose, voted as to the expediency of introducing pure water at the cost of the city, as follows—yeas, 2,107; nays,

136. Robert H. Eddy, a well known engineer of this city, in a report on this subject, calls the well water *bad*, and the rain water totally unfit for use. In 1837, Messrs. Hale, Treadwell and Baldwin, were appointed Commissioners to make surveys and estimates, &c., and report the best source of supply. They reported that they had examined all the sources of supply which they deemed worthy of attention, and selected three of those sources of supply, as entitled to preference over all others. Long Pond they consider an adequate and available source. Charles River was another, and Spot Pond and Mystic Pond the other. A majority of the board recommended the last named source as the most expedient. Application was made to the Legislature for a grant of power to carry into effect their recommendation, but for want of time, no bill was passed. The estimate of needful supply was based upon the population of the city at that time being 80,000, with a prospective increase to 120,000. In consequence of the depressed state of business, and the indisposition of the citizens to incur heavy expenditures, the application was not renewed at the next session of the General Court. During the mayoralty of Mr. Eliot, the water question received unusual attention. In one of his messages he speaks decidedly of the great and growing want of water, and urges upon the City Government the adoption of measures for its immediate introduction. He considers it the interest as well as the duty of the City Government to undertake this supply, on the city's account, however easily it might be supplied by private corporations. The benefits that would accrue to the city from proprietorship of the works, from the use of the water in cleansing the streets, in aiding the fire department, and from appropriations to other useful public purposes, he thinks, should determine the citizens forever against a private supply. During this year, at a town meeting in Faneuil Hall, on the question, "Is it expedient for the city to acquire a supply of pure water at its own expense?" the votes were, yeas 2,541—nays 1,621, and on the question, "Is it expedient to com-

mence the work the ensuing year?" the yeas were 2,507—nays, 1,652. In 1839, this whole matter underwent an elaborate examination of a Committee of the Legislature, who concluded their labors by reporting a resolve authorizing the Governor to appoint Commissioners, &c. During the three years Mr. Chapman was mayor, in consequence of the depressed condition of affairs and the uncertain prospects for the future, this question was permitted to rest. In 1844, the proprietors of Middlesex Canal petitioned the Legislature for power to sell to the City of Boston, a portion of the waters of their canal. George Odiorne and others, in 1843, obtained an act of incorporation to bring in the water of Spot Pond. In July 1844, Dr. Channing and others applied to the City Government for a town meeting in Faneuil Hall, for the purpose of discussing the necessity and expediency of introducing into the city, a full and ample supply of pure water. The meeting was organized by the appointment of the Mayor as Chairman, and the City Clerk as Secretary. The meeting was adjourned, from time to time, without being fully attended, to the day of the city election. On that day the following propositions were submitted to the voters in their respective wards :

First proposition.—Are you in favor of procuring a supply of water for the inhabitants of the city of Boston, to be brought, at the expense of the City, from Long Pond in Natick and Framingham, or from any of the sources adjacent thereto, on the condition that those of the inhabitants who may elect to take and use the same, shall be required to pay for the water such reasonable tax as shall hereafter be fixed and established by a Board of Water Commissioners that shall be created ?

ANSWER,	Yeas, 6,260
	Nays, 2,204

Second proposition. Do you hereby vote to instruct the City Council to apply to the Legislature, in behalf of the city, for the grant of a suitable charter to carry into effect the object expressed in the first proposition ?

And do you hereby vote to instruct the senators and representatives elect, of the City of Boston, to exert their influence, at the ensuing session of the Legislature, to obtain a just and liberal charter for the object, as above set forth?

ANSWER. Yeas, 6,252
 Nays, 2,207

Third proposition.—Are you in favor of procuring a supply of water for the inhabitants of the City of Boston, to be brought, at the expense of the city, from any sources which may hereafter be decided by the City Council to be the best, on condition that those of the inhabitants who may elect to take and use the same, shall be required to pay for the water such reasonable tax as shall hereafter be fixed and established by a Board of Water Commissioners that shall be created?

ANSWER. Yeas, 1,206
 Nays, 7,081

Fourth proposition.—Do you hereby vote to advise the City Council to apply to the Legislature in behalf of the city, for the grant of a suitable charter to carry into effect the object expressed in the third proposition? and do you hereby vote to instruct the Senators and Representatives elect, of the City of Boston, to exert their influence at the ensuing session of the Legislature, to obtain a just and liberal charter for the object as above set forth?

ANSWER. Yeas, 1,194
 Nays, 7,144

Such an overwhelming majority of votes, if understandingly given, cannot be regarded, under the circumstances, otherwise than as very convincing, not to say conclusive, evidence of a deep felt and generally pervading want of water. It is evidence, also, of a settled determination, on the part of the citizens, that when this work is done it shall be done by the city at its own expense.

The remonstrants attempt to impeach this vote, and say that the voters did not rightly understand the force

and effect of the several propositions. It is not impossible that voters may, sometimes, be surprised or cajoled into casting their votes against their wishes and intentions, but how this could have happened to any material extent, under the peculiar circumstances of this case, passeth the understanding of your Committee. They allege, further, that the vote of the city council was not according to the oaths and convictions of the members, but was forced upon them by the might of popular opinion. Certain aldermen were put upon the stand, who sustained, by their testimony, this view of the subject, so far as it applied to themselves. But this, instead of weakening the just form of the popular vote, strengthens it, inasmuch as it shows aldermen, presumed to be conversant with city affairs and opinions, surrendering their preconceived notions to its influence and leaving themselves to its power. It is manifest that these gentlemen, at the time, considered this vote as pretty decisive evidence of public opinion.

Preliminary to the primary meetings of the citizens, and the action of the City Council, above referred to, Messrs. Jackson, Hale and Baldwin were appointed Commissioners to examine and report upon the project, previously recommended, of introducing the waters of Long Pond. These Commissioners assumed, as the basis of their report, the expediency of introducing such a quantity of water as will be sufficient for the supply of the city for a long time to come, on the supposition that there will be a continued increase of population. According to their computation there has been, already, an increase of thirty thousand inhabitants since the date of their report referred to.

The increased supply demanded by this increase of population, if procured by means of pumping, will require a greater expense, according to their mode of calculation, than to obtain the same, or a greater supply, in the mode which they propose from Long Pond.

Is the plan proposed practicable, sufficient to supply the want, and reasonable as to cost? It will not be expected of the Committee to pronounce judgment, *ex cathedra*, upon the proposed structure, either as to

its durability or cost. All that they can do is to report the opinions of competent engineers, who have examined the subject, and subjected it to the test of science and experience. The Commissioners, who reported the plan, express themselves undoubtingly as to the durability of the structure, and their estimates of the cost of construction. Two of these gentlemen have testified before your Committee, and strongly defend the calculations and doctrines of their report. We can safely say that we see no good reason for distrusting their opinions.

As to the sufficiency, permanency and purity of the source recommended, no serious question was made before your Committee. The water of Long Pond, though not as pure as that of Spot or Jamaica Ponds, was conceded to be as good as most pond or river water. Chemical tests show it to be as free from impurities as other water in the vicinity, and as unexceptionable on this account. No serious objection was, therefore, made as to the quality of the water.

The Commissioners recommend the construction of works, that will supply, daily, 7,000,000 gallons of water. This estimate is founded on the assumption, that provision should be made for a population, that may amount, hereafter, to 250,000. The estimate of the quantity required for such a population, is founded on the statement given in one of the reports of the Philadelphia Water Works, of the quantity demanded, in proportion to the number of inhabitants, for the supply of that city. The quantity allowed for each person is twenty-eight gallons daily. The Commissioners are of opinion, that a less quantity than is here proposed, will be inadequate for a prospective supply of the city, for the domestic uses of its inhabitants, for a constant resource for the extinguishment of fires, and for the various modes of purification of the city.

The estimated cost of the works, \$2,118,000, underwent severe scrutiny from the remonstrants. They endeavored to satisfy your Committee, that the estimate was much too small, and appealed to the cost of the Croton Water-works, as authority. The Croton cost

some \$11,000,000, exclusive of interest. It is forty miles long. This is twenty miles, say \$5,500,000. The Croton structure is about twice as large as this, and will, therefore, cost nearly twice as much, say for this, \$2,750,000. Now deduct \$1,000,000 for the Harlem bridge, and it leaves us \$1,750,000. This course of demonstration, shows the estimate of the Commissioners near the truth. At any rate, there is no reason, whatever, to doubt, that a durable work for the object proposed, can be constructed at an expense of moderate amount, compared with the magnitude of the object to be accomplished, and compared with the *ordinary* cost of great works of this nature. The face of the country, over which the aqueduct is to be carried, presents no obstacles of a formidable nature, and no works but of a simple and ordinary character seem necessary, for the accomplishment of the object.

The remonstrants contended, with much earnestness, that the petitioners were bound to show, that their source of supply was superior to all others. Spot Pond and Mystic Pond, Charles River, and Neponset River, Magog Pond, and Stony Brook, each have their friends, and might each be made to supply, in whole or in part, the want. Your Committee are of opinion, however, taking into the account the present and the future, the cost and permanency of such works, and the injurious consequences of an insufficient supply, that the petitioners acted wisely in preferring Long Pond.

It was contended, that the wants of the city, in respect to water might and ought to be supplied by private corporations, at the charge of the persons using the water. It was said to be unjust, to tax those who were supplied for the benefit of those who were not. Were such persons to derive no benefit from the works, there would be much weight in the argument. But all the common benefits of this improvement, they, in common with their fellow citizens, will enjoy. This objection goes too far. It might relieve the childless from the payment of a school tax, and the thoughtless from contributing his share toward the support of the

Gospel and other institutions, on which the salvation of our country depends. There are many reasons, why it seems to us, more appropriate to confer this power on the city, in its municipal capacity. Cheapness and uniformity of distribution, the laying down and repair of the pipe, the use of the water for the extinguishment of fires, and for the purification of the city, by cleansing its streets, drains and sewers, are among the reasons, that incline us to this preference, being better accomplished by municipal arrangement, than by any other.

As to the matter of land and water damages, the Committee can give no opinion. The Commissioners still think their estimate amply sufficient. As to the Middlesex Canal and Concord River Mills, both at Lowell and Billerica, if reservoirs be supplied as proposed by the city, to furnish as much water to the canal as it derives from Long Pond, no injury will be done to the canal or dependent mills by the diversion of the waters of Long Pond. Mr. Knight's factory in Framingham, is the most valuable property that will be disturbed by the aqueduct. It is said that he will be content with the substitution of steam power, and such other incidental damage as may be caused him by establishing the aqueduct. The lands over which it will pass to Corey's Hill, cannot be very expensive, being mostly pasture ground.

The necessity of resorting to the most appropriate sources, for the supply of water for so important an object, as that of meeting the wants of the inhabitants of a large and populous city, for the purposes of food, health and security against fire, presents an exigency as urgent as almost any which can be imagined, for the exercise of the right of eminent domain, in taking private property for a public use, on awarding an adequate compensation therefor. It is manifest that the object can be obtained in no other way, but at the hazard of subjecting the city to unreasonable exactions for the water required, and for the right of passage over land on the route of the proposed works. The power asked

for is precisely of the nature of that, which has been habitually granted for the construction of canals and rail-roads. The only novelty about it is, that the petition asks leave to appropriate water as well as land, and your Committee can see no good reason why the one is not as liable to this kind of appropriation as the other.

Your Committee has now examined the evidence, and arguments, and prominent points of the case, and conclude this report by saying, that, in consideration of the manifest want of water in the city, and the long protracted struggle to obtain a supply, and the practicability and reasonableness of the proposed aqueduct, they are unanimously of opinion that the prayer of the petition ought to be granted, and accordingly report the accompanying Bill.

MYRON LAWRENCE,

Chairman of Committee.

COMMONWEALTH OF MASSACHUSETTS.

In the Year One Thousand Eight Hundred and Forty
Five.

AN ACT

For supplying the City of Boston with Pure Water.

BE it enacted by the Senate and House of Representatives, in General Court assembled, and by the authority of the same, as follows :

SECT. 1. The City of Boston is authorized, in the manner hereinafter provided, to convey into and through the said city, the waters of Long Pond, so called, in the towns of Natick, Wayland, and Framingham, and the waters which may flow into and from the same, and to take and hold the said Long Pond and the waters flowing into and from the same, and also any other ponds and streams within the distance of four miles of said Long Pond, for the purpose of furnishing a supply of pure water for said city.

SECT. 2. The said City of Boston may take the said ponds and streams, or either of them, and any water rights connected therewith, and may also take and hold any real estate necessary for laying aqueducts and forming reservoirs, and for

any of the purposes of this act, and may build one or more permanent aqueducts leading from the said water sources into and through the city, and secure and maintain the same by any proper works, and may connect the said water sources with one another, may erect and maintain dams to raise and retain the waters therein, and make and maintain reservoirs within and without the city, and in general may do any other act necessary or convenient for the purposes of this act, and may distribute the water throughout the city, regulate its use, and the price to be paid therefor, within and without the city ; and the said city, for the purposes aforesaid, may carry any works by them to be constructed, over or under any highway, town-way, street, turnpike road, or rail-road, in such manner as not to obstruct or impede travel thereon ; and may enter upon and dig up any highway, town-way, turnpike road or street for the purpose of laying down pipes beneath the surface thereof, or for the purpose of repairing the same.

SECT. 3. The said city is also authorised to purchase and hold all the property, estates, rights and privileges of the aqueduct corporation, incorporated by an act passed February 27th, A. D. 1795, and by any convenient mode may connect the same with their other works.

SECT. 4. All the authority hereinbefore given shall be exclusively exercised through and by commissioners to be appointed as hereinafter directed, until the office of Commissioners shall cease as hereinafter provided.

SECT. 5. Three Commissioners shall be chosen by ballot by the Mayor, Aldermen and Common Council assembled in convention ; and any vacancy in the Board of Commissioners shall be filled in the same manner. Before the election of said Commissioners, the Mayor Aldermen and Common Council, in convention as aforesaid, shall establish and fix the compensation to be paid to the said Commissioners during the progress, and until the completion of the works herein provided for : *provided, however,* that such compensation shall not be fixed at a less sum

than three thousand dollars or more than five thousand dollars a year for each Commissioner during said time ; and shall also fix and establish the compensation to be paid to each Commissioner after the completion of said works ; *provided*, that such last mentioned compensation shall not be fixed at a less sum than one thousand dollars a year for each Commissioner. And whereas it may, after the completion of said works, be expedient that one of said Commissioners should be chiefly charged with the care and superintendence of the said works, the collection of rents, and the general executive duties of the board ; one of the said board shall be designated as Chief Commissioner by the Mayor and Aldermen and Common Council in like manner as is herein provided for the original choice ; and the said Chief Commissioner shall be paid in addition to his other salary, a further sum not exceeding two thousand dollars a year ; and the respective salaries hereby provided for said Commissioners shall not be reduced during their continuance respectively in said office.

SECT. 6. Every Commissioner appointed as aforesaid shall remain in office until removed by the Mayor and Aldermen and Common Council assembled in Convention as aforesaid ; and no Commissioner shall be liable to be removed except for incapacity, mismanagement or unfaithfulness in the discharge of the duties of his office, nor without having had an opportunity to be heard before such Convention, nor unless three-fourths of the persons elected as Aldermen and members of the Common Council in Convention as aforesaid shall vote for such removal.

SECT. 7. If any owner of lands, waters, or water-rights, taken for the purposes of this act shall not agree with the said city upon the price to be paid therefor, he may at any time within, but not after three years from the time of such taking, apply by petition to the Court of Common Pleas holden within and for the county in which such lands, waters, or water-rights shall have been taken, either before or during any term of such court, and, after fourteen days' notice, which may be given by leaving a copy of such petition with the Mayor of said city, the court may proceed to the hearing of the petitioner upon the ap-

pearance or default of the adverse party ; and the said court may thereupon appoint three disinterested persons, being freeholders and inhabitants of this Commonwealth, to determine the damages, if any, which such petitioner may have sustained ; and, after reasonable notice to the parties, to estimate such damages ; and the award of the persons so appointed, or of the major part of them, shall be binding and conclusive upon the parties, and shall be returned by them, as soon as may be, into the said court ; and upon the acceptance thereof by said court, judgment shall be rendered for the party prevailing, with costs, and execution shall issue accordingly. *Provided, always,* that if either party shall be dissatisfied with such award, such party may apply to the said court for a trial by jury at the bar of said court, to hear and determine all questions relating to such damages and to assess the amount thereof ; and the said court shall enter judgment and issue execution accordingly ; and costs shall be allowed to the parties respectively, in the same manner as is provided by law in regard to proceedings relating to the laying out of highways. *Provided,* that no complaint shall be made as aforesaid for the taking of any water-rights, until the waters aforesaid shall be actually withdrawn by the said city by virtue of the provisions of this act ; and any party whose rights may be thus affected, may make his complaint in manner aforesaid, at any time within three years from the time when he first sustains such injury.

SECT. 8. The said Commissioners shall exclusively exercise all the rights, powers and authority given by this act to the said city ; and in pursuance thereof, may make all suitable contracts, and employ all proper engineers, clerks and other agents in the premises, until the office of such Commissioners shall cease as hereinafter provided.

SECT. 9. For the purpose of defraying all the expenses and cost of such lands, waters and water-rights as shall be taken or purchased for the purposes of this act, and of constructing all works necessary to the accomplishment of said purposes, and all expenses incidental thereto, the said Board of Commissioners shall have authority to issue, in the name of the said city, notes,

or scrip, or certificates of debt, to be denominated on the face "Boston Aqueduct Scrip," to an amount, in the whole, not exceeding the sum of two millions five hundred thousand dollars, and bearing an interest not exceeding five per cent. per annum; and said interest shall be payable semi-annually, and the principal of said debt shall be payable at periods of not less than fifteen, or more than forty years from date; and the said Commissioners may sell the same at public or private sale, and may pledge the same for money borrowed at a rate not exceeding six per cent. per annum, when such scrip cannot be sold at the par value thereof, or may so pledge the same for money borrowed at a higher rate of interest, if authorized so to do by said city. And in addition to the said sum of two millions five hundred thousand dollars, the said Commissioners may issue and dispose of scrip in the manner hereinbefore provided, to meet all payments of interest accruing upon any scrip by them issued as aforesaid: *provided, however*, that no such scrip shall be issued by said Commissioners beyond two years after the completion of said works; but the payment of all accruing interest after that time shall be provided for by the City Government, in such manner as they may think proper. All certificates to be issued as aforesaid shall be signed by the said Commissioners, or a majority of them, and shall be countersigned by the Mayor of said city; and a record of said certificates shall be made and kept by the treasurer of said city.

All money received by said Commissioners shall be deposited to their credit, in some bank or banks of good credit, within said city, and subject to their order. The said Commissioners shall keep regular books of accounts, and books for the recording of their doings; and the clerks employed therein shall be sworn to the faithful discharge of their duty; and all such books shall be open to the examination of any person or persons appointed therefor by the Mayor and Aldermen of said city. The said Commissioners shall, once in every six months, make to the City Council a report of their doings, accompanied with complete exhibits of all their receipts and expenditures of money in the premises. When the funds provided as aforesaid shall be exhausted, the said Commissioners shall report the fact to the

City Council, and shall suspend the prosecution of the works until supplied with other funds, except so far as to secure and preserve what shall have been done.

SECT. 10. The City of Boston shall have the exclusive right of using and disposing of such of the waters aforesaid as may be taken by them for the purposes aforesaid; and an action of trespass on the case against any person, for using the same without the consent of said city, may be maintained by the said Commissioners.

SECT. 11. The said Board of Commissioners, for the time being, shall regulate the distribution and use of the water, within and without the city; and, from time to time, shall fix the price for the use thereof; and they may establish such a number of public hydrants, and in such public places, as they shall see fit, and direct for what purposes the same shall be used; all which they may change at their discretion.

SECT. 12. The owner and occupier of any tenement, shall each be liable for the payment of the price or rent, for the use of the water by such occupier.

SECT. 13. The said Commissioners shall make no contract for the price of using the water beyond the term of five years; and at the expiration of any term or lease, the price of the use shall be adjusted according to the regulations then established, and which may from time to time be established by the Commissioners while in office, or by the City Council afterwards.

SECT. 14. It shall be the duty of the said Commissioners to regulate the price of the water, with reference ultimately, to paying from the proceeds thereof the interest and principal of the Aqueduct Scrip aforesaid, as far as shall be found practicable, consistently with the purposes of this act. And the net proceeds of the water rents, after paying all expenses for maintaining the distribution of the water, and for salaries, wages, and incidental charges, shall be a collateral security to the holders of

said Aqueduct Scrip, in addition to the liability of the city, for the payment of the interest from time to time, and the final reimbursement of the principal of said scrip ; and when any surplus of funds shall be on hand, the said Commissioners may buy up any of said scrip for the benefit of the said city, and the same shall then be cancelled.

SECT. 15. Each of the said Commissioners shall, before entering upon his trust, give bond with sufficient surety or sureties to the said City of Boston, in the penal sum of fifty thousand dollars, conditioned for the faithful performance of the duties of his office.

SECT. 16. A major part of said Commissioners shall constitute a quorum for doing and performing all things allowed or required by the powers or duties of their commission. And all contracts, engagements, acts and doings of the said Commissioners, within the scope of their duty or authority, shall be obligatory upon, and be in law considered as done by said city.

SECT. 17. When the said Aqueduct Scrip shall all have been paid or cancelled, all balances of money, books, records, and documents, and all property shall be disposed of in such manner as the said City Council may direct ; the office of Commissioners shall cease, and all the rights, powers and duties touching the aqueduct ; the distribution of the water, and the price for its use, shall be exercised by the city in such manner, and by such servants and agents as the City Council may from time to time direct and appoint,—and all rights of action vested in said Commissioners, shall thereupon vest in said city.

SECT. 18. The said Commissioners may prosecute and defend any action or process at law and in equity, on contract or tort, by the name of “ the Water Commissioners of the City of Boston,” against any person or persons for money due for the use of the water, for the breach of any contract express or implied, touching the execution or management of the works, or the distribution of the water, or of any other promise or contract

made to or with them ; and also for any injury, trespass, or nuisance, done or suffered to the water, water sources, works, or establishments within or without the said city ; and any vacancy in the Board of Commissioners, or the filling of any vacancy either before or after any such injury, trespass or nuisance, or before or after the making of any such contract, as aforesaid, or cause of action accruing, shall not change the right of said Commissioners as a body to commence or maintain such action or process at law or in equity, but in all such cases, they shall be considered from the time of the organization of the board as a corporation.

SECT. 19. If any person or persons shall maliciously divert the water of said ponds or water sources, or shall corrupt or render impure the same, or any connected therewith, or shall destroy or injure any dam, pipe, aqueduct, conduit, machinery, or other property used in the premises, such person or persons, and their aiders and abettors, shall forfeit to the said city, to be recovered in an action of trespass, or trespass on the case, by the said Commissioners, treble the amount of damage which shall appear on trial to have been sustained thereby ; and may, upon conviction, be further punished by a fine not exceeding one thousand dollars, or by imprisonment not exceeding one year.

SECT. 20. The Mayor and Aldermen of said city, shall notify and warn the legal voters of said city, to meet in their respective wards, within sixty days from the passage of this act, for the purpose of voting upon the question, whether they will or will not accept the same ; and if a majority of the votes given in shall be in the negative, this act shall be void.

SECT. 21. This act shall take effect from and after its passage.

The foregoing is a correct copy of the bill as it was reported by the Committee. In its passage through the Legislature the following amendments were adopted :

In Sect. 1, by inserting after the word "city," line 2, the words "the water of Charles River, at and from some point in the town of Watertown, with the consent of said town, to be determined upon by the Commissioners to be appointed under this act, or." Also at the end of the same section by inserting the words "and the City Government shall determine by a majority of votes in joint ballot, from which source to bring the water."

In Sect. 2, first line, by inserting after "Boston," the words "water of Charles River, or of said."

In Sect. 9, line 17, after "par value thereof," by striking out the following words, viz: "or may pledge the same for money borrowed at a higher rate of interest, if authorized so to do by said city."

The first sentence of the second paragraph of the same section is so amended as to read, "All money received by said Commissioners shall be deposited to their joint credit, in some bank or banks of good credit, within said city, and subject only to their joint order."

The same section is further amended by inserting after the words "Mayor and Aldermen," at line 8 of 2d paragraph, "or by the Common Council."

In Sect. 16, line 4, after "doings of," the words "majority of" are inserted.

¶ In Sect. 20, line 4, after the word "voting," the words "by ballot," are inserted.

With the foregoing amendments the act was adopted and approved by the Governor, March 25, 1845.

APPENDIX.

DR. T. C. JACKSON'S REPORT

OF

ANALYSIS OF WATER OF LONG POND, NATICK.

BOSTON, February 1st, 1845.

MESSRS. WM. PARKER, JAMES HAYWARD, and T. B. CURTIS,
GENTLEMEN :

At your request, I visited Long Pond, in Natick, on Tuesday last, and obtained specimens of the water from each of the three divisions of that pond, and have since made a chemical analysis of each sample, the results of which I now communicate.

Specimen No. 1, was taken thirty rods from the shore, and opposite the place where, according to the plan given me by Mr. James F. Baldwin, the proposed aqueduct is to commence.

No. 2, was taken near the middle of the central division of the pond, nearly opposite the house of Widow Coggins, and four hundred paces from the shore.

No. 3, was taken from near the middle of the upper division of the pond, opposite the house of Mr. Morse, and about four hundred yards from the shore.

The water was obtained by cutting holes through about ten inches of ice, and was drawn up by means of a clean tin bucket, and poured into clean glass jars and demijohns, which were closely stopped and brought to my Laboratory in Boston for analysis.

Chemical analysis of the water of Long Pond.

One Imperial English gallon, equal to 70,000 grains of dis-

tilled water at 60° F, or to 277.274 cubic inches in bulk, of each sample, yield the following amounts of vegetable and mineral matters, when evaporated to entire dryness, and on separation of the ingredients.

Long Pond Water No. 1, (Lower Pond.)

Vegetable matter destructible by heat,	2.4 grains.
Mineral matter (earths and salts,)	3.6 “
	<hr/>
Whole contents of one gallon of the water,	6.0 “

Long Pond Water No. 2, (Middle Pond.)

Vegetable matter destructible by heat,	1.64 grains.
Mineral matter (earths and salts,)	3.88 “
	<hr/>
Whole contents of one gallon of the water,	5.52 “

Long Pond Water No. 3, (Upper Pond.)

Vegetable matter destructible by heat,	1.42 grains.
Mineral matter (earths and salts,)	2.90 “
	<hr/>
Whole contents of one gallon of the water,	4.32 “

The vegetable matter consists of the usual organic acids of the soil, which are combined with the earthy bases, lime, magnesia, and with oxides of manganese and iron. These bases are separated by combustion of the vegetable acids, the lime and magnesia which they contained, being converted into carbonates of lime and magnesia.

The salts are chloride of sodium, or sea salt, sulphate of lime or gypsum, and sulphate of soda, which are found in the mineral matter, mixed with a minute quantity of clay and phosphate of lime, and the earthy bases derived from the combustion of the organic acid, compounds before noticed.

The foreign matters in this water, are in such small proportions, as in no way to impair its healthfulness as a drink, nor will they prove injurious in washing clothing.

It is somewhat remarkable that the water of the upper division of the pond should prove the purest, considering the fact of its overflowing a small peat bog or cranberry meadow, during this season of the year. This must result from the influx of purer water from a neighboring pond, which empties into Long Pond, by a small stream, traversing the meadow.

In riding around Long Pond, and viewing its steep, gravelly shores, I was favorably impressed with the plan of raising its waters by means of a dam at the outlet, being satisfied that no dan-

ger was to be apprehended from flowage of extensive bogs, as some have supposed would result therefrom.

The little bog or cranberry meadow, at the head of the pond, may be dyked out, and saved from flowage, and the value of that kind of land will indicate the propriety of doing this. The bog comprises forty acres, and is worth \$1.50 per square rod, for peat, taken three splittings deep. If this bog is dyked, the small stream which passes through it, may be turned and brought in through more elevated land.

I would remark, in conclusion, that pond waters are always better than river waters, since they are free from admixture of earthy sedimentary matters, which are brought down by rivers during freshets, and require to be removed by allowing the water to remain at rest for some time in a settling pond, before conducting the water to the city.

Those who have seen the water from the Fairmount water works, in Philadelphia, in the spring season, must have observed in it a considerable proportion of fine earthy matter, which renders the water milky at that season of the year. No such sediment will ever be seen in the water drawn from the natural ponds in this vicinity, for those ponds are fed chiefly by subterranean springs, and all the earthy matter which washes in from the shores, subsides readily, where there is but little or no current.

It must be obvious to every one, that inland ponds will furnish much purer water than can be obtained from wells sunk in the marine clays and sand of Boston, which charge the water with saline matters, while the surface waters not only become impure from this cause, but are also contaminated with various impurities from the drains and vaults so abundant in the top soil, or near the surface.

Most of the well water of Boston is very impure, and is becoming more so, from increased sources of filth, especially from the connection of vaults and water closets with the common sewers, which are far from being impervious at their bottoms and sides. I am therefore satisfied that it will soon be absolutely necessary to introduce an abundant supply of pure water into the city, and the neighboring ponds will furnish an adequate supply.

At the request of the Committee, I have analysed a specimen of water, regarded as one of the purest in the city, and herewith present the results. It was furnished from a well in Tremont street, by Mr. Baldwin. One imperial gallon of this water was found to yield 26.6 grains of brown diliquescent matter, consisting of muriates of lime and magnesia, sea salt, sulphates of soda and potash, and sulphate of lime, with organic matters from the soil, which gave the salts a brown color. Few well waters in the

city are so pure as this. Those on the low lands are often so highly charged with salts, as to be unfit to drink.

The waters from Artesian wells in Boston have generally been found to contain more saline matter than that of ordinary wells of less depth. Hence it appears that since good water cannot be obtained from the soil of the city, we shall be obliged to seek for it elsewhere.

Respectfully your obedient servant,

CHARLES T. JACKSON.

16 #

FELLOW CITIZENS,

The question is to be taken and decided in a few days, by yeas and nays—whether you will accept the Act for supplying the city of Boston with pure water from Long Pond or Charles River.

It appears that many reflecting and judicious persons, who are wholly opposed to the unusual provisions of *the Act*, may nevertheless vote for it—under the apprehension, that if the Act be rejected, no *immediate* or satisfactory measures will be resorted to, for such a supply of water as is imperatively demanded by the inhabitants of the city.

To allay, and if possible to banish, all such apprehensions, we the undersigned, subscribers to the Spot Pond Aqueduct Company, and others, interested in the great question now before the public, are induced, unhesitatingly, to declare to you, that as soon as the question is settled, so that we can move in the matter —

We will use our best endeavors to form and complete a Company to bring into the city, for immediate distribution, the waters of Spot Pond, under the act granted in 1843, and amended by the last Legislature, and we feel confident in stating, that within *one year* after the work is commenced, the waters of Spot Pond will be flowing through the streets of the city.

We will subscribe for shares in a Company, to be formed under that Act, and we will solicit others to subscribe thereto.

We will offer the whole stock of the Spot Pond Company to the City, and if they decline to take the whole, they may have any part less than one-half. The Act also enables the city to take the whole after the work has been completed by private enterprise.

We hereby pledge ourselves, if the city refuse to take the whole stock, and leave the business of supplying the city (where having a regard to the public economy it belongs,) to a private company—in order to relieve all fears of ‘*a mercenary corporation*’ and ‘*grinding monopoly*,’ that we will petition the Legislature, for an amendment of the Spot Pond Act, to the effect

- 1 — That the Mayor and Aldermen *shall forever be*, by virtue of their office, *but without compensation*, a Board of Water Comptrollers, whose duty it shall be to supervise the income of the corporation, and to regulate the water rents, from time to time, so that the Stockholders shall not receive a yearly profit of less than six per cent, if the net income of the works will yield so much — nor more than ten per ct.
- 2 — That the said Board of Water Comptrollers, shall determine, from time to time, how many, and when and where, *public hydrants* shall be placed in the street, for the accommodation of the poor, for the use of which an annual rent shall be paid by the city to the Corporation.
- 3 — Said Board shall also determine how many, and when, and where, ornamental public fountains, not exceeding three, shall be placed, and the annual rent for the use of both hydrants and fountains (if the Water Comptrollers and the Corporation cannot agree upon a price) shall be fixed by three Commissioners, to be mutually chosen by the parties, from time to time, as occasion may require.
- 4 — Said Board may notify the Agents of the Corporation — when and where they desire to have fire plugs inserted into the main pipes — and said Corporation shall be compelled forthwith to make such insertions, at the expense of the city — but the use of the water, for the suppression

and extinguishment of fires and to fill the city reservoirs, shall at all times be free, and without any expense to the city — and one or more servants of the Company shall at all times be at hand, to aid the Chief Engineer of the Fire Department.

If the result of your votes, fellow citizens, permit the undersigned, and others who may become their associates, to proceed under the Spot Pond charter, (a copy of which is hereto subjoined for your information,) you will obtain without any cost to yourselves or to the City, beyond an annual charge to those who become consumers of the water — and *for fifty years at least*, as we firmly believe, that most desirable boon, a copious supply of the purest water for domestic uses — street hydrants *to accomodate the poor* — for manufacturing purposes — public baths — ornamental fountains — and the protection of your property from the ravages of fire; and this great result may be effected within one year from the present time.

We trust that the foregoing statement will assure to our fellow citizens, that the undersigned are solely influenced by a due regard to the public welfare, and not by a sordid desire, as has been so boldly imputed to us, — ‘of filling our pockets from the hard earnings of the poor.’ And when the voters of Boston reflect, that it has required many years to find a market for the waters of Jamaica Pond, that Spot Pond is nearly three times as high, and more than four times as large, and, by the report of our Commissioners, has actually

furnished for seven months of Spring, Summer, and Autumn, a supply of over two millions, five hundred thousand gallons of water per day, it will be a subject of deep regret, if Boston should vote for an Act *that must delay the supply of water for several years*, and involve the City in a large and unnecessary debt.

John D. Williams,
 E. A. & W. Winchester,
 Ebenezer T. Andrews,
 Henry Codman,
 Richard S. Fay,
 L. M. Sargent,
 C. W. Cartwright,
 Simon Wilkinson,
 Benj. Humphrey,
 Thomas B. Wales,
 Josiah Bradlee,
 George B. Cary,
 James B. Bradlee,
 Wm. Thomas,
 Caleb Reed,

John A. Lowell,
 Robert G. Shaw & Co.,
 J. Richardson & Brothers,
 Osmyn Brewster,
 Johnson, Sewall & Co.,
 Abel Adams,
 Moses Williams,
 William W. Parrott,
 Cyrus Alger,
 Henry B. Stone,
 Thaddeus Nichols,
 John Ballard,
 Charles Amory,
 George M. Dexter,
 George H. Kuhn.

BOSTON, May, 1845.

A N A C T

TO INCORPORATE THE SPOT POND AQUEDUCT COMPANY.

*Be it enacted by the Senate and House of Representatives,
in General Court assembled, and by the authority of the same,
as follows :*

SECT. 1. James C. Odiorne, George Odiorne, Jr., Isaac Warren, their associates and successors, are hereby made a corporation, by the name of "The Spot Pond Aqueduct Company," with all the powers and privileges, and subject to all the duties, liabilities and provisions contained in the forty-fourth chapter of the Revised Statutes.

SECT. 2. The capital stock of said company shall be five hundred thousand dollars, to be increased to one million dollars, if found to be necessary ; the same to be divided into shares of one hundred dollars each ; and the stockholders shall be individually liable for all debts of the corporation.

SECT. 3. The said corporation may purchase, take and hold, in fee simple, or for any less estate, any lands necessary for the objects of this act, and for the convenient management of the concerns of said company, not exceeding in value the sum of two hundred thousand dollars, and may purchase Spot Pond, so called, in Stoneham, for the purpose of conducting water therefrom into the city of Boston ; and to this end may take and hold any lands necessary for laying aqueducts, forming reservoirs, and any flats flowed by tide-waters, which may be required to carry the objects of this act into effect ; and if the proprietors of such lands as the corporation may take, for the purpose of laying pipes or aqueducts, and constructing reservoirs, do not agree

with said company on the price to be paid therefor, any such proprietor may have the damages assessed in the same manner as is provided in the one hundred and sixteenth chapter of the Revised Statutes; and the said corporation, in all cases where it does not acquire title to any land by voluntary conveyance, shall cause a certificate, describing the land so taken, to be signed by the president of said company, and recorded in the registry of deeds in the county in which the land lies.

SECT. 4. The said corporation is hereby authorized and empowered to lay its pipes, or aqueducts, under or over any rail-road, canal, highway or street, *provided, always*, that the same be done in such manner as not to obstruct or impede the passing thereon; and said corporation may lay its pipes or aqueducts across Mystic and Charles rivers, by tunnel or otherwise, *provided* that said pipes and aqueducts be so laid in said rivers as not to rise above the bed of the channel of said rivers. Said corporation may also carry its pipes or aqueducts to South Boston, *provided*, as above, that said pipes or aqueducts be so laid as not to rise above the bed of the channel.

SECT. 5. The said corporation, in laying its pipes, aqueducts, or other apparatus, through the highways and streets of the town of Charlestown and in the city of Boston, and in repairing such pipes or aqueducts, from time to time, shall not unnecessarily obstruct such highways and streets; and in every case of the removal of any earth or pavement, in any such highway or street, the said corporation, at its own expense, shall cause the earth to be replaced and the pavement to be laid anew, so that such highway or street shall be in as good condition as the same were in before such removal. The breaking up of the pavement, or any part of the streets of the city of Boston, and the times at which the same shall be done, shall be under the direction of the mayor and aldermen, or such persons as they shall appoint.

SECT. 6. In the laying and construction of the pipes or aqueducts which may be laid in the town of Charlestown,

and in the city of Boston, the same shall be so laid and constructed, that water can be drawn therefrom for the extinguishment of fires, and used by the persons thereto authorized by the town of Charlestown, and by the city of Boston respectively, and free access to the water in such pipes and aqueducts shall be had whenever the same shall be laid within the town of Charlestown and within the city of Boston; and the said town and city shall have the right, at their own cost respectively, to place fire-plugs and all proper and necessary fixtures therefor upon any pipes or aqueducts of said corporation, and at as many different places, in the several highways and streets, as the selectmen of the said town, and the mayor and aldermen of the said city shall deem needful for the purpose of drawing water for the extinguishment of any fires which may happen in said town or city; *provided*, that the said fire-plugs and fixtures shall not be used for the purpose of drawing water from said pipes for any other use than for the extinguishment of fires, and shall be so constructed as to prevent the water in the pipes from running to waste; and the said corporation shall not demand nor receive any compensation for water taken for the extinguishment of fires as aforesaid. The city of Boston shall also have the right, on such reasonable terms as shall be agreed upon, to draw water from said aqueduct for the use of the public buildings and establishments, and for ornamental purposes.

SECT. 7. If any person shall wilfully and maliciously defile, corrupt, or make impure the pond or reservoirs used by said corporation as aforesaid, or destroy or injure any dam, pipe, aqueduct, machinery, or other property of said corporation, such person, and all who shall aid or abet in such trespass, shall forfeit to the use of said corporation, for every such offence, treble the amount of damages which shall appear, on the trial, to have been sustained thereby, and may further be punished by a fine not exceeding one thousand dollars, or may be imprisoned for a term not exceeding one year.

SECT. 8. The said corporation is hereby empowered to sell the privilege of using the water which may be conducted from the said Spot Pond to any corporation, person or persons; *provided*, that no compensation shall be taken for the use thereof for the extinguishment of fires as aforesaid.

SECT. 9. Whenever said corporation shall have purchased Spot Pond, and shall have purchased or taken any lands, which it may deem necessary and proper for carrying the purposes of this act into effect, no other corporation, person or persons, shall enter upon such pond or lands, for the purpose of drawing the waters from said pond, for any purpose whatever; but such waters shall be and remain to and for the use of said corporation. And said corporation shall furnish for the city of Boston all the water which the capacity of said pond shall be able to furnish, excepting so much as may be distributed in Charlestown, and the same shall be conveyed to the city in one or more iron pipes, each not less than twenty inches in diameter.

SECT. 10. *The city of Boston shall have a right to subscribe, in common with others, for one third part of the shares in said corporation, or any less proportion thereof. And the said city may, at any time, purchase of the said corporation, their franchise, and all their personal and real property by paying to said corporation the cost and charges for the construction of said aqueduct, and the source thereof, together with ten per cent. thereon, with six per cent interest, first deducting from said interest any amount received by said Corporation for the use of the water of said aqueduct, or the sources thereof. And from and after the execution and delivery of the conveyance and transfer aforesaid, the said city of Boston shall have all the right and be subject to all the duties in this act expressed, as to said corporation.*

SECT. 11. The said corporation shall construct one or more reservoirs, within two miles of said city of Boston, at an elevation of not less than one hundred feet above high tide, which together shall contain not less than five hundred thousand gallons of water.

SECT. 12. Said aqueduct shall be completed to Boston within three years ; and one mile, at least, of iron pipes, of the diameter of twenty inches, shall be laid within one year and a half after the passage of this act.

SECT. 13. The said corporation shall make a report annually to the Legislature, of the amount of its receipts and expenditures.

SECT. 14. Nothing herein before provided shall be construed to restrain the Legislature from hereafter regulating the prices of the water to the inhabitants of said city of Boston and town of Charlestown, if the Legislature shall judge fit. Nor shall any thing before expressed in this act be construed to prevent the Legislature from granting any act of incorporation to any other company or corporation, now or hereafter to be established, to convey water into the city of Boston from other sources.

COMMONWEALTH OF MASSACHUSETTS.

In the year one thousand eight hundred and forty-five.

An act in addition to an act to incorporate the Spot Pond Aqueduct Company.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows :

SECT. 1. So much of the second section of the act to which this is an addition, as is contained in the following words, 'and the stockholders shall be individually liable for all debts of the corporation' is hereby repealed.

SECT. 2. The time prescribed by the twelfth section of the act to which this act is an addition for completing the aqueduct therein named, is hereby extended two years: and the time prescribed in the said section of the said act for laying a portion of the iron pipes of said aqueduct, is hereby extended one year.

SECT. 3. The said Spot Pond Aqueduct Company may exercise all the powers, and shall be subject to all the duties, liabilities, and provisions of the thirty-eighth and fortieth chapters of the Revised Statutes.

House of Representatives, March 25, 1845.

Passed to be enacted, SAMUEL H. WALLEY, JR., Speaker.

In Senate, March 25, 1845.

Passed to be enacted, LEVI LINCOLN, President.

March 25, 1845. Approved,

GEO. N. BRIGGS.

SECRETARY'S OFFICE, March 27, 1845.

A true copy, Attest,

JOHN G. PALFREY, Secretary.





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